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ART. I.—*Thoughts on Primary Education,—Elementary Instruction in Reading, Writing, Arithmetic, Grammar, and Geography.*

[Resumed from last number.]

No child should be permitted to read a single sentence, without being able, in the first place, to comprehend the meaning of every word in that sentence. But how different is the common practice. Children are hurried into pronouncing before they know their letters; into reading before they can pronounce; and into the Bible, Pitt's speeches, and Addison's philosophical speculations, before they can define the word *baker*. This want of attention to definitions has been seen and lamented by many teachers. To remove the difficulty, some have proposed a spelling book with the definitions annexed to each word. If such a book were in general use, however, there is reason to believe that the study of it would degenerate into a routine of committing to memory, without acquiring ideas; the very rock on which we are all wont to split. Another error which infests all our first books, without exception, would be likely to creep into this too, viz. introducing words according to some artificial order, without regard to the wants of children. Now those words should be first taught to children which they use most, and are in most need of; and their reading lessons should be constructed on this principle. But

what child will ever use half the words in some of the tables in our spelling books? And suppose he should; if he does not need them *now*, why should he commit them to memory, until he has made himself thoroughly acquainted with those which he *does* need? Will it be said that, considering the various wants of various children, a book cannot be prepared on this plan,—since what would be necessary for one child in one place or situation in life, might be entirely useless to another in different circumstances? But perfection is not to be expected: we must come as near perfection as we can. Nor, after all, are the wants of various children so widely different as has been supposed. They are, in this respect, nearly the same.

A first book constructed on the plan suggested in the last number of the Journal, would come as near the real wants of children as any of which I am at present able to conceive. It is especially desirable, because it would teach the elements of science rationally, not mechanically. I know of no other plan of teaching children to define words extensively, except the one there proposed,—if carried out into all its applications. Nor do I know of a better way of teaching reading. The pupil would thus read his *own* language, his own *words*. And how could he avoid reading them naturally? only by being put forward too fast, an error as common as it is lamentable.

If these views are correct, how deficient our school books must appear! Our spelling books in general what are they? Fit for philosophers it may be—fit for those who already possess a liberal education, but evidently unfit for children,—for beginners. Who is the disciple of Pestalozzi that shall give us a book in his spirit, and constructed on a rational plan? Such a book, or rather such a set of books, would do more towards preparing a child to teach himself, to educate himself, than all the various elementary works that have ever been used in common schools. I do not mean to say that no other books would be necessary,—doubtless they would; and this preparatory work would be a key to unlock their treasures. This work alone, however, without any others, would be worth more than all others without this.

Perhaps no books are more unfit for the purposes to which they are usually applied, than our reading books. I know there has been an improvement in their character, within a few years; still however, they are, with a few exceptions, altogether unfit for the use to which they are applied; unfit for

young readers to learn to read in, until they have made the necessary preparation. There would be a time in the course of a rational education, when such books as 'Leavitt's Easy Lessons,' 'Nursery Morals,' 'Early Lessons,' 'Popular Lessons,' 'Jack Halyard,' and a few others might be useful, at least much more useful than they now are: for at present they do very little good. Then there is a set of books exceedingly well adapted to the wants of those who by long practice have acquired an accurate knowledge of the meaning of their words. Such for instance are the 'American Preceptor,' and Murray's reading books.

Valuable as the American Preceptor would be to those who were sufficiently advanced to use it, its use in our common schools at present is highly pernicious. As a member of the Board of Visitors in the town where I now reside, I have found it my duty to hear children, who were scarcely able to read the simplest combinations of words of one syllable, attempt to read in the American Preceptor and English Reader. Nothing but a sense of duty could make me submit to so much pain as I have suffered at these visits. For the exercises from first to last were performed without interest. The reading especially was calculated to disgust. It consisted of a mere repetition of words, of which the pupils neither understood the use nor the meaning. One exhibition of this kind in particular I shall never forget. A class of scholars who were just able to read the simplest sentences which could be devised, were directed to read a piece in the American Preceptor, on profane swearing. Most of its paragraphs, consisting of from four to ten lines each, contained at least twenty words, of which not a scholar in the class could give any thing approaching to an accurate definition. One of the paragraphs, of twelve lines, contains more than forty words of the above description. I here quote the first paragraph of the piece, as it exhibits a fair specimen of the whole. 'Few evil habits are of more pernicious consequence, or overcome with more difficulty, than that very odious one of profane cursing and swearing. It cannot be expected that the force of moral principles should be very strong upon any one who is accustomed, upon every trivial occasion, and frequently without any occasion at all, to slight the precepts and character of the Supreme Being.' Now of the many nouns, adjectives, and verbs in this paragraph, not a scholar in the class had any knowledge of the definition of more than *three*, nor any adequate idea of even these. Now how im-

proper a selection was here made! No wonder children hate their books and school when thus managed. Nor is it any wonder that we have few good readers among us.

With respect to the Bible as a reading book, I have a few words to add. The Bible contains the word of God. With it, should children associate, from their earliest years, sentiments of reverence. They should never touch it, nor if possible be suffered to see any one else touch it, with indifference. If they do, and if it be often repeated, they cease to reflect on its importance, and lose their reverence for it. If it be used as a common reading book in school; if it be suffered to lie by the side of the English Reader, the Preceptor, and the Spelling Book; if its leaves are turned over and over a thousand times a day, what, I ask, will be the consequence? The answer is at hand. It becomes associated in their minds with the Spelling book! They come to maturity with these associations, and either become practical infidels, or discover their error at so late a period of life that it is next to impossible to reform.

It has already been observed that the best way to learn to *write*, is, to be in the constant habit of writing from earliest infancy; first, with chalk, next with a pencil on a slate, and lastly on paper. And I cannot but think that to spend any time for the special purpose of learning to write, is altogether unnecessary. Still, as a majority of the world believe and practice differently, I venture to offer my thoughts on the subject.

Too many things are required of the learner at once. In beginning to write as is commonly taught, the following points are to be attended to at the same time, viz. Position of the body and arms, position of the paper, manner of holding the pen, size, length, slant, distance, and both the absolute and relative proportion of the marks. Now, requiring a minute attention to all these points at once, confuses a beginner. Even if we ourselves have had the good fortune to escape so awkward a predicament, we may judge a little of the tyro's confusion, by attempting to move one hand horizontally, and the other perpendicularly, at the same time. We shall thus obtain a faint idea of the unpleasant situation in which we place a child when he begins to write. While he tries to give his mark the proper size, length, or slope, he will, almost of necessity, forget his manner of sitting, or holding his pen; thus exposing himself to the frowns—perhaps blows, of a tyrannical or ignorant master.

The scholar is better able, in the view of some, to overcome these difficulties, if we defer writing till a more mature age. I know well that a person of twelve or fifteen years of age will learn much *faster*, than at an earlier age ; and he ought, for his time is worth more ; but whether the value of the time, (at a fair estimate,) which is taken up in learning to write in early life, will be greater than that of so much time as will be necessary to make the same proficiency in later years, may be a question. It has also been said that those who never write a word till they come to years of discretion, will make *better* writers than those who begin very young. What proof can be adduced in support of the assertion I know not ; but suppose it were true that a person, commencing thus late, would write more *elegantly*, yet do we not in a case of that kind sacrifice too much to elegance ? I have no wish to undervalue an elegant hand writing, it is a desirable thing ; but I would not give up utility for the sake of it. To write plainly and with despatch, are, in the common walks of life, of more consequence. One thing I am sensible favors deferring the subject of writing to years of discretion. The pen would be held better. And yet there are some men who hold their pens as badly as possible, who yet write with elegance and rapidity. I have sometimes even doubted whether young persons would not write better by suffering them to take their own way as to holding a pen, at least after giving them our opinion and the reasons on which it is founded. Nature has given us constitutions physically different. Perhaps the best we can do is to conduct the education of children in such a manner as to carry out and perfect their peculiarities, rather than attempt by artifice, or system, to bring them to a given standard. To think of making them write a *similar hand*, is undoubtedly foolish. And perhaps the idea of making them sit or hold the pen exactly alike, is equally futile.

Suppose, however, every objection which has yet been brought up were valid, there is one consideration which must forever decide the point in favor of commencing early ; and that is the fact that greater, far greater progress will be made in every other science by one who can, than by one who cannot write. Indeed, nothing seems to me more unnatural or irrational than the pursuit of other branches to the neglect of writing. The plan which has been suggested in a former essay, could not, as will be seen, be prosecuted at all without writing. It is my opinion that by prosecuting our studies in

the manner there laid down, or in the spirit of the plan there proposed, every scholar would become a good writer, without devoting a moment of time specially to the art of writing.

Yet suppose it were necessary to teach writing as a separate thing, I maintain that by teaching a child to write first with chalk, and next with a slate pencil, we should be introducing him to the subject gradually. He might next be taught how to hold his pen; but for the first three or four days he should be permitted to write when and what he pleased. A model of a hand, with a pen properly placed in it, formed of wax or some soft material—or an engraving to the same intent, might be kept constantly before the eye of the learner. During this time, and for some time previous, he should be exercised in combining the elements of letters in various ways; such elements to be prepared of paper, or thin plates or slips of metal, justly shaped and proportioned. It is well known that the number of elements which go to form the letters of the alphabet, are only six or eight, besides a few knots, loops, &c—though for the benefit of the scholar it would be well to have a number of each kind, especially of the *upper* and *lower curve* and the o. If these were accurate in their proportions, and if the scholar had many of each sort, he might be pleasantly and profitably employed in putting them together so as to form words, and even simple sentences for spelling, reading, &c. These exercises would both interest and instruct; and remove one of the great difficulties in the way of managing young children at school, viz. the want of employment. Only furnish business for children which pleases them, and you may spare the rod, as well as much lecturing and catechising.

After this, the scholar might proceed to writing the straight mark; when he could shape this properly, he might be taught the proper slope of letters; and thus he might proceed, step by step, till he became able to write a good hand. It will be seen that my object is to have only one thing done at a time, or at least to have the learner have but one object in view at a time; for if the same act, if one single blow can be so struck as to bring about several results as a natural consequence, so much the better. Such has been shown to be the fact in contriving sentences to include, and make sense with, the words of a given lesson. In this way, the scholar, though he has but one object *in view*, is actually making progress in more than half a dozen different branches of science. One important point I had almost forgotten. Every child should be taught as early

as possible to make his own pens. And here I would repeat a sentiment which I have often laid down in some shape or other, that we should have but one object immediately in view at a time, and endeavour to understand one thing perfectly, before we proceed to another. But whether writing be taught separately or not, there can, it seems to me, be no doubt that we ought to begin writing on a slate as early as we begin to do any thing, and carry it on simultaneously with other studies.

We not only err in presenting *matter* to children for reading lessons which is altogether beyond the reach of their capacities, but our *manner* of teaching this important branch is defective and erroneous. The reading lessons of children are often ten times too long. Every instructer will concede that it is better for his pupils to read *little*, and read that little *well*, than to read a great deal with inattention. Why, then, should he not practise according to his principles? Why are scholars suffered to stammer over whole pages of matter which they do not understand? In answer to a question of this sort, an instructer lately told me that it was necessary for children to read over a great deal at a time, even if it was not understood, that they might become acquainted with words and be able to pronounce them at sight, without hesitating. I need not say that his remarks were thought unworthy of a serious answer; for my opinion on this point has already been given. Yet I am entirely ignorant of a better apology for so wretched a practice, except ignorance; which is always more or less excusable. I have frequently heard a class of three or four, read five or six pages at a lesson, from the more difficult lessons of Bingham, Murray, or Cooke. And the bare *reading* of these pages constituted the whole of the performance. True the instructer had given out, at some previous period, such general rules as the following: 'Pronounce every syllable and even every letter distinctly.' 'Read as you talk.' 'Observe the pauses.' Now these rules are good, but of what use are they to children, unless put in constant practice, and enforced by the instructer's example? Obviously of no use at all. For if they are of any consequence, they ought to be habitually attended to, in the reading of every sentence. To observe them one minute and entirely disregard them the next fifteen, is worse than to have no rules at all and attend to the example of the teacher solely. And it is reasonable to think that if children were to read nothing but what they understood perfectly

in every respect;—if they read but a few lines at a time; and if the teacher set them a good example by reading with them constantly, and reading naturally and correctly, all these arbitrary rules might be dispensed with. For though they serve the instructer some purpose, especially the pauses, as by pointing out the grammatical construction of his sentences they assist him in understanding their meaning, yet, after all, it is the sense of the language which must dictate to every good reader the proper pauses, emphasis, cadence, and tone. It is not my intention to assert that no class of readers ought in any circumstances to read more than eight or ten lines at a lesson: this may sometimes, though I think rarely be proper. But I speak of readers in general in our common schools. With these a simple sentence of not more than one line, is often abundantly long; and a judicious teacher might be profitably engaged in such a lesson, with a large class, for the space of half an hour, if it were advisable to protract the lesson for so long a time; and the pupils might be interested. I know a teacher of a private school in this State, whose reputation is deservedly high, who thinks half an hour little time enough to spend on a lesson of six or eight lines in a common reading book, with twenty or thirty scholars of almost or quite adult age. But he requires them to be able to define all the words, and, by paraphrasing and transposing extensively, show that they understand their various meanings. They must also be able to spell and pronounce every word in the sentence or paragraph used as a lesson; understand and properly apply the pauses, tones, inflections, emphasis, and cadence; as well as understand the grammatical construction, and be able to parse the sentence. And if any idea be contained in the lesson related to geography, chronology, history, philosophy, or any of the sciences, arts, or manufactures, or the great subjects of morals and religion, he does not hesitate to enlarge on that subject, and by familiar question and answer, or *lectures*, lead their minds toward those subjects, and encourage them to pursue them. Every scholar is farther expected to be able to analyze every sentence and word, resolve compound sentences into simple ones, and also to express the sentiments or facts in his own words. This is true instruction. But what teacher can pursue a course like this with a *long* lesson? Not one.

It will doubtless be objected that very little can be done in this way; that children will *never* learn to read at this rate. This objection will be made, however, by those who measure

improvement by pages, or volumes, rather than by ideas, and know not but if a person skims over a certain number of pages, he has actually learned them;—as absurd an opinion as it would be to suppose that the support furnished to the body by a meal of food, is in exact proportion to the amount of nutritious matter received into the stomach; without considering that it is what the stomach can digest, and not that which remains undigested, that is of service in supporting life. However, those who think that *cramming* is *feeding*, the mind or body, deserve commiseration rather than reproach. Yet unhappily for the well-being of mankind and the cause of improvement, their number is large, and their influence considerable.

I anticipate another objection to this mode of instructing children, viz. that it will make them, not truly learned, but smatterers in every thing; that they will become filled with self conceit, instead of becoming more and more humble. This objection *at first view*, appears to have great weight, and to be sanctioned by high authority. St Paul tells us that, 'Knowledge puffeth up;' superficial knowledge, I suppose he means; for it is contrary to fact to suppose that *real useful* knowledge puffs up. The wisest and best of men, in all ages have been the most truly humble, and the least conceited. The objection appears, then, to be founded on an opinion that the methods of study I have proposed, are, in their nature, directly calculated *to make* superficial scholars—*to make* smatterers. But this *opinion* is, it is believed, founded on a popular error. The fact that such men as Bacon, Locke, and Newton, by applying themselves to their favorite studies, have carried them to such a pitch of perfection as to astonish mankind by their discoveries, has sometimes been viewed in such a light as to produce this mistake. We are ready to take it for a general rule that the more closely we pursue a branch of science, to the exclusion, for the time being, of all the rest, the more we shall make progress. But I am persuaded this notion cannot be true. Science has sometimes been compared to a circle; at others, to a chain; but be these comparisons more or less just, such is the relation and connexion between its various branches, and such is their mutual dependence, that we cannot proceed far with one, without immediately perceiving a necessity of more knowledge of some of the others. If we go on without this knowledge which we perceive ourselves to want, we expend effort in vain; and the farther we proceed, the greater will be the amount of lost effort in a given time. But if we stop a suf-

ficient length of time to acquire that knowledge which we perceive to be necessary, we shall be able to renew our former course by and by to better advantage ; besides, in this instance there will be no useless labor, or lost effort. It is true we shall not get so far in a particular direction as if we pursue our course constantly in one line without stopping, or turning to the right or left ; but the sum total of our progress will be much greater. Now how can a course which necessarily subjects us to the loss of so much of our labor, be on the whole productive of our own or the general good ?

All the various branches of science, natural and moral, should be studied in such a manner as to aid, illustrate, and expand each other and the mind. If it could be proved that individuals, by pursuing a favorite science to the exclusion of others, could promote either their own or the public stock of knowledge, still, I would contend that such could not possibly be the case with children. It is *elements* they want : they need not to be carried along far in any one line ; our business consists far less in teaching them, than in putting them in a way to teach themselves. What they want is the keys of science. Give them these, and show them how to unlock her treasures, and we have done much. And unless this is done, we have done very little. If these views are correct, it will be seen that smatterers cannot be made by initiating children into the various departments of science gradually as their necessities require. When our progress in knowledge is natural—when the idea which lies *next* to those we already possess is communicated to the mind, it produces the effect of enlarging our vision so as to make the fields of knowledge beyond us appear more ample, and more interesting. We see more beyond us than we saw before ; and this by comparison makes what knowledge we do already possess, appear less in amount. And shall we become conceited by seeing more and more our ignorance ? On the contrary, will it not tend to humble us ? And is that *superficial* knowledge which humbles proud man ? I do not mean to say that the more we know, the more ignorant we are in reality, for this would be a contradiction in terms; but the more progress we make in real knowledge, the less we shall perceive we know compared with what remains to be known.

After all, it has never been proved that such geniuses as Locke and Newton, much as they have done for mankind, would not have done vastly more for themselves and others,

by cultivating the whole circle of the arts and sciences simultaneously. Like meteors, they have shot out into the expanse of knowledge; have excited by their brilliancy our surprize and perhaps our admiration; and justly: yet I doubt much if mankind are so much benefitted by their labors as if they had been bestowed on other subjects more, and on metaphysics and astronomy less.

Of *arithmetic*, *grammar*, and *geography*, it may be observed in general that though we have had many philosophical treatises on these subjects, yet we have had none, until very recently, adapted to the capacities of children. Authors first lay down general rules, and then proceed to those particular cases or *facts* from which their rules are deduced, and on which they are grounded and built. Is this agreeably to the order of nature? Certainly not. The Author of nature presents his creatures with facts, rather than principles; leaving it to them to make inferences from those facts. This great truth was most clearly pointed out by Bacon, two hundred years ago. And yet in regard to education, mankind have long neglected this discovery. Those who have written for the benefit of children, have almost universally been in the habit of beginning with generals, and proceeding to particulars. Why not follow the inductive method of Bacon? Why not acquire as many facts as possible, and then generalize?

Mr Colburn is the first in this country who has followed the inductive method in preparing an arithmetic. His 'First Lessons,' and Mr Fowle's 'Child's Arithmetic,' are two most excellent works. Besides these, we have now many others on a similar plan. I wish they were more extensively known and used by children. Such authors as Pike and Daboll have been studied too long. Their works were never fit for learners. There can be no possible gain, but a heavy loss in requiring children to load their memories with useless rules, or derange their mental faculties in attempting to apply a rule which they do not and cannot understand. I question the propriety of requiring them to touch a pen or pencil (in the study of *arithmetic*, I mean,) till they have gone through Fowle and Colburn. Afterward they may proceed to study some more extensive work, as Colburn's Sequel, Pike, or Daboll. Much is to be done, however, either with or without the little work of Mr Fowle, by means of sensible objects. Youth must not be hurried along too fast, of which there is constant danger. I would spend a portion of time almost every day on Fowle or Colburn,

from the time the pupil is capable of instruction, say two years of age, till he is eight years old. By this time he will be thoroughly acquainted with these two works, and prepared to enter on the more difficult works with advantage. But even without any thing more than a thorough knowledge of those two authors, every young person would possess more real practical knowledge than the study of such authors as Daboll and Pike alone would give him, if he were to study them a whole lifetime.

Had we instructers who would take special pains to speak and write correctly in all their connexion with their pupils; and had we such first books as we need, children would probably acquire a habit of speaking and constructing their sentences in strict conformity to the rules of *grammar;* which would probably supersede the necessity of studying any system. For to what purpose should we study grammar, when we already understood it to all intents and purposes? We cannot be said to be under the necessity of learning it for the sake of teaching it to others, for why should we teach others that which has proved useless to ourselves?

As things are, however, there may exist an apparent necessity of teaching English grammar as a separate science. And if it must be taught I would proceed in a manner somewhat like the following. I would commence and proceed for a time without any book; for our grammars are chiefly liable to the objections brought against our systems of arithmetic. I would request my pupils within a certain specified time, to write on a slate the *names* of all the *things* they could see or think of in the room. When they had finished this lesson, they might be directed to write the names of some other objects. In this way a class might be agreeably employed several days. It would be an excellent plan to request them to write the names of all they could recollect of the following classes of objects. Fruits, flowers, quadrupeds, fowls, fishes, trees, liquids, shrubs, cloths, knives, implements of husbandry, articles of manufacture, articles of household furniture, &c. Nor should the learner be told that these are *nouns* until several lessons have been given out. After some time I would proceed to actions. Perhaps the first lesson might be something like the following: The instructer stamps on the floor; the scholars are required to write such a word as will describe the action. One will write *stamp*, another *stamps*, and another perhaps will describe the action by the word *steps*, or *strikes*. If an *attempt* be only made,

they are not to be discouraged if they do not succeed quite so well at first. Other actions might then be performed, the scholars in every instance writing down some word that will, in their view, describe the action. A shrub or stick might be brought into the room; this might be *tossed*, *dropped*, *lifted*, *whirled*, *swung*, *bent*, *bruised*, *split*, *cut*, *peeled*, *broken*, *sawed*, *burnt*, &c. After the instructer had proceeded in giving out lessons of this kind several days, his pupils might be informed that this kind of words were *verbs*. All the arbitrary definitions in the world will never give young children clear ideas of what verbs and nouns are; but in this way they understand their use and nature perfectly. With a small share of ingenuity an instructer could invent some plan of teaching adjectives and the other parts of speech, on a similar principle. *Person*, *number*, *gender*, *case*, &c. should likewise all be taught on the same plan. In one stage of the learner's progress, it would be profitable to give him *verbs* to form into sentences, by the aid of such nouns or pronouns as he could recollect. Lists of nouns, adjectives, &c. might also be given out, to combine with other words and form sentences.

It has been observed that children cannot get clear ideas of the nature of the parts of speech from arbitrary rules or definitions. This assertion may surprise some persons who have not had leisure to think on the subject; but it is true. I have had some experience in this matter, and do not hesitate to say that it is entirely useless to commit any rules, definitions, or explanations of our English grammar books to memory. That such books aid an instructer, I have no doubt. That they may be useful to advanced scholars is probable. But that they are entirely useless to young persons—to beginners, let their age be what it may,—I am confident. There is, for example, not a solitary sentence in Murray's Abridgment of his English Grammar under the head of orthography and etymology, that ought to be committed to memory,—I mean as a separate exercise; for this is what is generally understood by the phrase *commit to memory*. Whether any thing in prosody or syntax should be committed to memory, I do not know. Let a plan similar to the one suggested above be adopted in our schools, and children will be led insensibly to form their own rules, definitions, &c. They will come to them as a result. And these results will be to all intents and purposes, correct.

How painful is the reflection that the days, and months, and years, which have been devoted to committing grammar to

memory without making any practical application of it at the same time, have been lost and worse than lost. For nothing has done more towards disgusting children with the study of grammar, and, from association, study in general, than this. And an instructer who has never tried a rational method, would, upon trial, be surprised at the difference. Instead of yawning, and wringing, and dreaming, all is interest. The scholar perceives that he makes progress—and finds himself capable of understanding his subject. His contenance—his words—his actions, show that he is pleased with himself, and with his employment.

In teaching *geography*, why should we begin with *astronomy*? Why begin at the heavens, and then come down to the earth? Or at the remotest parts of the earth, and gradually approach our own dwellings? I say *approach*; for we never reach them, we wander forever. In the vicinity of my residence not one in fifty that studies geography, understands much about his own State, or county; much less of his own town. Now if this part of the State be a fair specimen of the rest, of what use is their geography? There must certainly be a radical error somewhere. For the geography of our own town and the towns adjacent, is of vastly more consequence to us than the same extent of country in other parts of the universe. Must not there be a fault then in the popular method of teaching this useful branch of science?

To proceed gradually from the known to the unknown, must be the true method of study—the order of nature. And it will be our highest wisdom to avail ourselves as much as possible of sensible objects. They are more necessary in geography than grammar, though useful in both. Mrs Willard's Geography for beginners, is said to be constructed on this great principle; I mean that of proceeding from the known to the unknown. Yet I think much is to be done before a scholar is prepared for that work. In that, as well as other works, we talk about distances, heights, &c., of which children have no definite ideas, nor is it possible they should have. I think the first lesson in geography, after a child has acquired some knowledge of numbers, should be to give him a clear and distinct idea of an *inch*; for perhaps it is unnecessary to descend to tenths or barley corns. When he was able to judge of this distance pretty well, he should be taught to repeat the distance until he had an adequate idea of an inch repeated twelve times. By this time he might be told that twelve inches make a *foot*; six

inches half a foot, &c. Then the foot might be doubled and trebled; this being done, he should be informed that three feet make a *yard*. Thus we might proceed gradually from step to step, till our pupil could understand the extent of a rod, a rood, a mile, a league, or a degree. The practice of talking to children about *rods* or *miles*, while they have not the most distant conceptions of an *inch* or a *foot*, is bad indeed; and would not be tolerated were one tenth of its evils understood. But the experiments now going on in education, must speedily convince the most sceptical of the inestimable value of the inductive system, as well as of the paralyzing and depressing tendency which our old systems have had on the human mind.

I have amused myself and satisfied my mind of the superiority of the inductive system in teaching geography, by experiments on little children who have sometimes called at my room; while they were ignorant of my ultimate object, and only felt that they made me and themselves happy by their prattle. Having satisfied myself that they knew nothing about an inch except by name, I have usually commenced by showing them some little object which I had about me, as a pin, or something about an inch in length, and after some familiar conversation about it which was calculated to arrest their attention, have told them it was an inch long. Now, I would say, you have learned what an inch is, have you not? They would usually seem pleased. They were then shown other objects of the same length, but differing in breadth, thickness, shape, color, &c. and made to understand that these too were an inch in length. Their faculty of judging was then apparently exercised a little, by placing before them objects either of half an inch or an inch in length, and asking them to guess how long they were. By placing two objects each an inch long in a line, I would now show them how much two inches was, three inches, &c. Before I proceeded to repeat the inch oftener than three or four times, I used to show them my penknife, the handle of which was marked into a three inch rule, other penknives, keys, pencils, crayons, combs, &c. and require them to judge of their various lengths; thus proceeding gradually and carefully till they became able to judge, almost as accurately as myself, of any distance not exceeding twelve inches. When I had proceeded to so far as to exercise their judgments on objects twelve inches long, I would tell them this was a *foot*. In this way I found no difficulty in making them sensible of the progress they had made; and every step of this progress seemed to be attended

by its own reward. I have repeatedly pursued this course to the length of a yard at a single conversation, and never found the child fatigued with the process. Though to avoid the possibility of tiring their minds, I would not advise others to proceed so far at once. It is of the utmost importance here, as well as in all the instructions we give young children, that they be pleased; that they do not pass from one thing to another till they perfectly understand their subject so far as they have gone, at least till they understand it as far as they can without other ideas; and that they themselves perceive the progress they are making. If we knew the human mind sufficiently well, and how to adapt ourselves and our lessons to the capacities of the infant mind in all circumstances and conditions, I have not the least doubt but we might so inculcate every thing we wished, as to engage the attention, and enlarge the minds of the most obtuse. It must surely be so; it would be an obvious impeachment of the wisdom and goodness of the Deity to believe and declare otherwise. The acquisition of new ideas must, and it *does*, make every rational being happier; better pleased with himself, and better pleased with those around him. And these good feelings, added to that fresh desire to know more which will naturally be enkindled, will urge the learner forward in the field of knowledge with a greater or less rapidity. If some appear to be exceptions to the truth of these remarks, it is either owing to our ignorance of the human mind, and an inability to trace effects to their intimate causes; or to some unseen agent which operates to counteract our efforts.

No child should be permitted to enter on the more direct studies of geography till he has gone through a set of exercises, similar in principle to the above; but much more diversified and extended. He should be taken abroad to see brooks and rivers, hills and mountains, shrubs and trees, and be required to judge of the breadth and height of these and various other objects. At the same time he should be instructed in the art of drawing maps, beginning with the map of the room in which he is accustomed to dwell, and proceeding gradually to delineate the house, garden, 'homelot,' orchard, &c. with which he is familiarly acquainted. Thence he might extend his survey of objects to the neighbourhood or village, and ultimately be able to draw a tolerably correct map of the town where he resides. As the travels of very young children must necessarily (at least in the present state of human society,) be limited to a very narrow tract of country, it would be impossible to give

them accurate ideas of all the numerous divisions of land and water by ocular demonstration. To supply the want of these, an ingenious instructer can show them continents and seas, and lakes and islands, in *miniature;* without going out of the school room. Nay, there is scarce a natural or artificial curiosity in the known world, but what might be ingeniously and naturally represented in suitable and accurate proportions. I hesitate not to predict that all these objects in miniature, will be ultimately deemed as necessary in every school room, as books, slates, pencils, &c. They will not supersede the necessity, or at least the utility of travelling; children ought, at the same time, to travel in company with their parents or instructers as much as possible.

Nothing is here said which can be fairly construed into a want of respect for the labors of the many able geographers of our day. It is to prepare the scholar to relish and digest the facts contained in the valuable works of those authors, and not to supersede their use. I must, however, dissent from the opinion pretty generally received, that the *plan* of Woodbridge and Willard is adapted to the wants and capacities of very young children. They are not prepared to generalize, until they become more acquainted with particulars than scholars usually can be who enter at once upon that ingenious work. Yet even where this is the first book used in geography, much advantage will be derived from the preparatory steps which have been recommended in this essay: nor will those who reflect be willing, in any possible case, to dispense with the spirit of a process so manifestly adapted to the real wants of the learner.

ART. II.—*Aids to Developement, or Mental and Moral Instruction. Exemplified in Conversations between a Mother and her Children.* London. R. B. Seely & Co. 1829. 2 vols. 12mo. pp. 309 and 262.

THIS work is on the general plan of the Mother's Book of Pestalozzi. Its main object is to suggest methods of cultivation, which tend to develope early and in just proportion the faculties of the whole infant being; mingling bodily activity,

and a careful moral nurture, with all the exercises of intellect. The book is divided into successive 'conversations,' supposed to have taken place in an ordinary and familiar way, but serving every valuable purpose of regular lessons on various subjects. The mother leads the conversation in a natural but skilful and truly philosophical manner, so as to elicit thought and instruction from the young mind itself, and thus to give depth and reality to the mental character; while the insensible and cheerful progress of the learner, is felt to be in true harmony with the happy nature and condition of childhood.

The work has been but recently received, and we have not had time for a full examination of it. The part devoted to religious instruction would be read probably with very different impressions by different persons. But of this we do not consider it our province to speak. Of other parts of the work our readers will perhaps be interested in the following specimen. At present we have not sufficient time or space for further notice; but our intention is to resume the examination of the book at a future opportunity, as it seems to be rich in materials for the various purposes of early education. The following is the 'introductory conversation.'

'My dear Mrs Eustace, said Mrs Sandhurst, as she entered the room, I am glad to find you alone, and, I hope, at leisure to spare me a little of your valuable time. I have long wished to converse with you on the subject of education, in which I feel deeply interested; but in the practical application of which, I find so many difficulties meeting me at every step, that I have almost determined to give up the plan of educating my children myself; and I think of sending them to school.

'*Mrs Eustace.* I feel with you, that there are great, though, I think, not insuperable difficulties, in the way of a mother's educating her own children; but it is a plan so evidently pointed out by God himself, that it should not be hastily relinquished. The influence of a mother over the affections of her child during the years of infancy, enables her not only to cultivate its mind, but to give its heart those impressions, which she may humbly hope it will never lose, in after intercourse with the world; and which, through the influence of the Holy Spirit, she may firmly believe may enable it to overcome the various temptations, by which it will be assailed.

'*Mrs Sandhurst.* I feel all you say to be true, and only wish that I could be as successful as you have been, in bringing up your children. May I ask what are their ages? I do not exactly remember.

'*Mrs Eustace.* Fanny is fourteen, Albert, eleven, Lucy, eight, and Edward, three years old.

'*Mrs Sandhurst.* Mine are rather older than yours, but they seem to have so rooted a dislike to application, that I am completely worn out with the exertion of teaching them.

'*Mrs Eustace.* You will pardon me, my friend, if I venture to remark, that if you complain of being fatigued by instructing your children, it is not wonderful that they should participate in the same feeling. But perhaps you are too anxious to *teach* them instead of drawing them out to teach themselves?

'*Mrs Sandhurst.* I do not comprehend your meaning. I have taught them exactly in the same manner as I was taught myself; nay, I have employed the same books, that I might make no mistake.

'*Mrs Eustace.* What will you say to me, then, when I tell you that I use hardly any books, especially with the younger children?

'*Mrs Sandhurst.* No books, Mrs Eustace! but surely you teach them grammar, arithmetic, spelling, and reading?

'*Mrs Eustace.* I do, but not at all in the manner in which they are usually taught.

'*Mrs Sandhurst.* I have used small Catechisms on every branch of learning, considering that knowledge presented in so very clear and condensed a form, would be much more easily retained than in any other way.

'*Mrs Eustace.* I entirely differ from you there. Can any thing be so uninteresting to a child as this mode of instruction; in which the bare facts are brought before him, stripped of all that could make them pleasing? I remember too well the disgust I myself felt—when obliged to commit long tasks to memory, scarcely a word of which I understood,—to impose the same burden on others.

'*Mrs Sandhurst.* Do you not think, then, that the memory ought to be early cultivated?

'*Mrs Eustace.* I do, but not as a distinct faculty. Whatever is thoroughly understood will be easily retained; but whatever is learned merely by rote, will be as easily forgotten; and if it were not forgotten, it could never be of any use. I never allow my children to learn any thing by heart, which I am not first assured, by questioning them, that they fully understand. If they acquire in the course of a whole day's application, but one clear idea, something is gained; whereas, of what avail is it to them to have committed pages to memory, to which they attach no meaning, or at most only a confused, and frequently a false one? The teacher has at first little to do, but to draw from the child that which he can himself observe, by attending to what passes in his own mind, as well as by coming in contact with sensible objects.

'*Mrs Sandhurst.* Indeed your theory appears to me scarcely intell gible, because I have always thought, that the first duty which I owed to every child when it was old enough, was to teach it to read; and this I have accomplished with infinite pains and trouble.

'*Mrs Eustace.* I would not shock your prejudices by a harsh declaration of my own sentiments; but allow me to say, that I think reading is quite misplaced, by being allowed so complete a precedence in the order of instruction. Words are but the *signs* of *things*, of actions, or of feelings; and of what value is the *sign*, till the *thing* is understood, which it is intended to express.

'*Mrs Sandhurst.* I agree with you, but until a child can read, how is it possible to instruct him in any thing?

'*Mrs Eustace.* Every thing within its reach or its view, may be made a source of instruction. Take, for example, any part of its body, an arm, a hand, or any of its actions; or any thing in the room. Here is a piece of stick, this will afford a long lesson. Its breadth, length, thickness, weight, color, form, properties, uses, origin, growth, &c. upon all these the child's observation may be directed, and they may become sources of improvement. By these simple methods a taste for inquiry is excited, the child will be led to reflect on its own powers and capacities; and its faculties will be developed more rapidly than you would at first conceive to be possible.

'*Mrs Sandhurst.* This is all very well for a clever mother, but I should despair of finding a sufficient variety of subjects to instruct my children upon this plan.

'*Mrs Eustace.* Believe me, you are quite mistaken. You need not fear that you will want materials, the mind of a child once brought into active operation will furnish them for you, and you will soon have enough to do in answering the questions which your young pupil will propose to you. Children will often make inquiries, to which their parents will find it no easy task to reply satisfactorily. And by this mode of treatment you will prevent them from degenerating into those little sensual beings, who are continually disgusting you with their appetites and passions; —while, on the other hand, they will have endless sources of pleasure and improvement opened to them.

'*Mrs Sandhurst.* I should like to be a learner in your school, for I feel my own need of instruction daily. Neither pains nor expense were spared in my education, and yet I find that I never thoroughly understood any thing that I was taught.

'*Mrs Eustace.* Nothing would give me more pleasure than to point out to you such plans, as might enable you to be at once the mother, friend, and teacher of your children. It is one of the excellencies of the system which I advocate, that we learn

with our little ones; they become unconsciously our instructers, by continually furnishing us with fresh materials for thought and reflection.

'*Mrs Sandhurst.* But at what age do you think a child capable of being taught?

'*Mrs Eustace.* Much sooner than is generally believed; a child can hardly be said to be incapable of receiving impressions, from its very birth. How soon does it observe the expression of its mother's countenance, and give evidence that it is the subject of painful and pleasing sensations, from external objects! Light, color, and form, are the first sources of these impressions, and, gradually, thought is exercised upon them. After this time, the child begins to feel its own power of making impressions upon these external objects; and at a still later period it is conscious of its own mental existence, and becomes a reasoning being.

'*Mrs Sandhurst.* Is it then to its reasoning powers that you would principally direct your attention?

'*Mrs Eastace.* Far from it, the main point at which we must aim, is to draw forth its affections, and thus to form a proper basis, on which to ground intellectual culture. Without keeping this constantly in view you may ultimately make its knowledge an obstacle in its way to heaven.

'*Mrs Sandhurst.* In order to explain your method more clearly to me, may I ask you to send for one of your children? I shall then have a practical illustration of your mode of teaching.

'*Mrs Eustace.* With pleasure; you shall see my youngest boy directly. I will fetch him.

'Mrs Eustace soon returned; bringing little Edward in her arms.

'Now, Edward, said she, run and fetch mamma your stool. Show me what you can do with it?

'*Edward.* I can set it down, mamma, and lift it up.

'*Mrs Eustace.* So you can! Do something more with it.

'*Edward.* Look mamma, I can push it away, and then pull it back again.

'*Mrs Eustace.* And can you do any thing else with it?

'*Edward.* O yes, drag it after me, and then turn it over.

'*Mrs Eustace.* Well done Edward, now think of something more to do with it.

'*Edward.* May I throw it, mamma?

'*Mrs Eustace.* No, Edward, something more gentle than throwing.

'*Edward.* Oh! see how it goes along the floor.

'*Mrs Eustace.* What do you call that?

'*Edward.* I don't know, mamma.

'*Mrs Eustace.* Sliding it, my dear. What are you doing with it now?

'*Edward.* Carrying it in my right hand. I will carry it in my left, and then in both hands, mamma.

'*Mrs Eustace.* Can you put it no where else but in your hands, Edward?

'*Edward.* Yes, mamma, I can carry it, like the milk-woman, on my head.

'*Mrs Eustace.* And when you have done that, what is the opposite to your head?

'*Edward.* I know, mamma; my feet; I can put it under my feet.

'*Mrs Eustace.* And what do you do when you have put it under your feet?

'*Edward.* I stand upon it, mamma, and I can put one foot on it, and then the other foot on it.

'*Mrs Eustace.* Can you place it in any other way than it is in now?

'*Edward.* I will try, mamma. I can turn it on its side, and on its end.

'*Mrs Eustace.* And how are you holding it now, my dear?

'*Edward.* Sloping, mamma. And now I am putting it against your chair.

'*Mrs Eustace.* That is called *leaning* it, my dear. Tell me what you would like best of all to do with it?

'*Edward.* I should like to sit on it, close by you, mamma. May I?

'*Mrs Eustace.* Yes, my love, do so.

'*Mrs Sandhurst.* I admire this lesson exceedingly.

'*Mrs Eustace.* You see clearly that the child has comprehended the meaning of the *terms*, by his having performed the actions they express; and though he knows nothing of the *name* of an "active verb," yet he knows the *thing*, which is far more important.

'*Mrs Sandhurst.* Would it not have been as well if you had told him to lift the stool, or do any thing else with it?

'*Mrs Eustace.* By no means;—I should merely then have him go through a set of exercises; but in asking him, What can you do with it? I have called forth reflection. A child quickly acquires language for himself in the daily intercourse of life; but if, after he has performed an action, he wants words by which to express it, you may then give them to him.

'*Mrs Sandhurst.* I understand the distinction, and see the force of it. But how would you proceed in making him acquainted with the other parts of speech?

'*Mrs Eustace.* Not very systematically perhaps; but shall we try the prepositions, without telling him that long word, which has frightened so many children?

'*Mrs Sandhurst.* Pray do.

'*Mrs. Eustace.* Now, Edward, jump up, and bring your stool to me. Where are you holding it?

'*Edward.* *Between* my hands, mamma.

'*Mamma.* Put your hands somewhere else, and tell me where they are.

'*Edward.* They are *over* it now, mamma.

Mrs Eustace. Change their place again, and tell me where they are.

'*Edward.* *Under* it, mamma.

'*Mrs Eustace.* Can you put them in any other way, my dear?

'*Edward.* Yes, *behind* it, and *before* it, mamma.

'*Mrs Eustace.* And where are they now, Edward?

'*Edward.* *Near* it, mamma; and now they are *far* from it.

'*Mrs Eustace.* Right, my love; that will do.

'*Mrs Sandhurst.* Your plan of teaching grammar makes that an amusement, which is generally the most irksome occupation.

'*Mrs Eustace.* Yes, I find it does so. I need scarcely point out to you how easily you may teach the adverbs in the same mode, by connecting them with an action done *quickly*, *slowly*, *gently*, *suddenly*, *violently*, and so on. And as to the nice distinctions in grammar, they are certainly quite beyond the comprehension of children, and therefore no good end is effected by burdening their memories with them.

'*Mrs Sandhurst.* But you would not set aside reading; and my difficulty on this point returns. When would you teach it, and how?

'*Mrs Eustace.* With regard to reading and every thing else, no invariable rule can be given. Much depends on the child itself; some will learn almost insensibly, while they are very young, and others will be three or four years old, before they seem to have any notion about the combination of letters into syllables and words. I am never at all solicitous on the subject, and should prefer waiting many years, rather than force it upon them as a task. If the mind be enlarged, and led to think, they will after a time desire to read as a medium of acquiring further knowledge. I have generally taught reading and spelling at the same time, by printing words for them on paper, and making these into short easy sentences, which they themselves dictated to me; and also by letting them have some alphabets of single letters on card, which they formed into words. Another plan I have adopted, is that of showing them the pictures of animals, with the names printed under them, which the children have learned to spell for the purpose of finding out what to call them.

'*Mrs Sandhurst.* And have you found this sufficient, without requiring them daily to spell a certain quantity from a book?

'*Mrs Eustace.* Quite so, and much more effectual.

'*Mrs Sandhurst.* Yóu said that you did not teach systematically; will not this produce desultory habits in your pupils?

'*Mrs Eustace.* I am glad that you asked me that question, because I see that you have misunderstood me. I meant simply, by saying "not *systematically*," not according to the systems usually laid down. Methodical teaching is of the first importance. But there is another point in education which cannot be too much insisted on, and which is very generally overlooked, and that is, an orderly developement of the faculties.

'*Mrs Sandhurst.* I do not quite understand you.

'*Mrs Eustace.* I mean, that the order designed by nature should be strictly attended to here. Instead of which, how common it is to see one portion of the mind cultivated, whilst the rest is allowed to lay waste; whereas if this order were observed, what different results would be discoverable, and what an harmonious balance would be presented between the various mental powers.

'*Mrs Sandhurst.* I thank you for this explanation, to the truth of which I fully agree. I have found great difficulty on another subject, on which I should like to have your opinion, and that is with regard to the amusements of little children. I am constantly buying them new toys, and contriving ways of entertaing them, yet I have generally been disappointed in the result.

'*Mrs Eustace.* We greatly err in supposing that children need so many sources of amusement as are provided for them by the mistaken kindness of mothers and relations. You cannot but have remarked, how long a child will amuse itself, if left alone, with the simplest object. But if the passion for novelty is excited by supplying it with fresh sources of gratification, he becomes restless, dissatisfied, uneasy, and irritable.

'*Mrs Sandhurst.* I admit the justice of your remark; but would you give your children no toys?

'*Mrs Eustace.* There are a few of which I find they are never weary, such as balls and humming tops, but especially some hundreds of little wooden bricks; these they can place in every variety of form, and they are an endless source of amusement and instruction. It is a great trial to a child's temper, to put those things in its power, which you must be continually reminding it not to break or injure.

'*Mrs Sandhurst.* Certainly I must try your plan at once in my nusery. But to recur to our former subject, I think I shall find much more difficulty in adopting your system with the elder than with the younger children; how can you vary your lessons for them?

'*Mrs Eustace.* This room alone would last me many months, if we were to go into all the minutiæ of its parts. The rudiments of arithmetic and geometry may be easily taught with no

other instruments, than the doors and windows: let the children observe the number of panes and pannels; and multiply or divide by—or subtract the one from the other; double and triple each, or both combined; then if you vary this exercise in every different way, you will always find something new. Let them find the different lines and forms of every thing about them, and compare one object with another; and after you have once pointed out to them the different sorts of figures and angles, by imitating and combining these, they learn the rudiments of drawing and geometry.

'*Mrs Sandhurst.* Would you then advise me at once to throw aside all the books I have been accustomed to use with my children?

'*Mrs Eustace.* By no means could I wish you to take such a step; so sudden a revolution might prove as injurious in your little community as it has done in many large ones. You might also find some difficulty yourself, in proceeding thus, until you have by reflection prepared your own mind for it; but you may gradually bring about the change you desire. Make your lessons less dry by introducing conversation upon them, and asking familiar questions as you proceed; lead the children to bring illustrations from what they have themselves seen, heard, or remarked, and vary your mode of instruction as much as possible. Never go on with any thing till weariness is produced, nor persevere in any thing which has hitherto caused nothing but uneasiness, for if it has already occasioned disgust, you will in vain endeavour to make it interesting afterwards.

'*Mrs Sandhurst.* I see the force of your observations, but perhaps you would not think it necessary for me to relinquish at all some of my present plans. I have been accustomed to set my children to learn by heart little poems which are written expressly for this purpose, do you object to this?

'*Mrs Eustace.* I confess I do, but on a different ground to that of which we before spoke. What is generally called poetry for children, in order to be made comprehensible to them, is brought down to so low a standard, that all which ought to be distinguishing in poetry, is necessarily lost. Instead, therefore, of their ideas being elevated by it, and their imaginations cultivated, the contrary effect is produced; and for these reasons I prefer not introducing poetry to my children, until they can understand and relish the higher kinds of it.

'*Mrs Sandhurst.* Then you would banish poetry altogether?

'*Mrs Eustace.* Oh no! a judicious teacher may select passages from our greatest poets to read with her pupils, into the meaning and spirit of which they will enter at an earlier age than you would at first suppose probable.

'*Mrs Sandhurst.* Do you adopt the usual method of giving rewards in order to stimulate to exertion? I have found it very useful, but I begin to suspect I may be wrong even here.

'*Mrs Eustace.* And I think your suspicions are well founded. An action is right or wrong according to the motive which has prompted it; and from what motive does that exertion proceed which has reward for its aim?

'*Mrs Sandhurst.* From a selfish one certainly.

'*Mrs Eustace.* Undoubtedly it does, and can we be too careful in avoiding every thing which is likely to foster this basest, and most prevailing tendency of our nature? Besides, it is impossible for us to judge how far reward is fairly earned. One child whose memory is tenacious, and whose powers are quick, will with very little application surpass another of less ability, whose efforts have been much greater, and whose whole attention has been bent towards the accomplishment of the end in view. Yet the latter goes unrewarded, and is depressed by the conscious injustice he has experienced, whilst the former is elated by unmerited reward. Emulation produces even worse effects, because the mind of the successful competitor is filled with vanity, and that of his unsuccessful rival with vexation, envy, and jealousy. Application excited by such means is not likely to become a steady principle, but will cease when the stimulus they supplied is withdrawn.

'*Mrs Sandhurst.* I think your reasoning is correct, though I have never seen the subject in this light before.

'*Mrs Eustace.* No, it is too generally overlooked. We are naturally disposed to indolence of mind, and by following in the beaten track, we comfort ourselves with the reflection, that it is not necessary to stop and ask at each step, Whither does this lead?'

ART. III.—*The Constitution of Man, considered in relation to External Objects.* By GEORGE COMBE. Boston. Carter & Hendee. 1829. 12mo. pp. 310.

'IF it be said, that the cure of men's minds belongeth to sacred divinity, it is most true; but yet moral philosophy may be preferred unto her as a wise servant and humble handmaid. For as the Psalm saith, that the eyes of the handmaid look perpetually towards the mistress, and yet, no doubt many things

are left to the discretion of the handmaid to discern, of the mistress's will; so ought moral philosophy to give a constant attention to the doctrines of divinity, and yet so as it may yield of herself, within due limits, many things sound and profitable.

'This part, therefore, because of the excellency thereof, I cannot but find exceeding strange that it is not reduced to written inquiry; the rather because it consisteth of much matter, wherein both speech and action is often conversant; and such wherein the common talk of men, (which is rare, but yet cometh sometimes to pass,) is wiser than their books. It is reasonable, therefore, that we propound it in the more particularity, both for the worthiness, and because we may acquit ourselves for reporting it deficient; which seemeth almost incredible, and is otherwise conceived and presupposed by those themselves that have written. We will therefore enumerate some heads or points thereof, that it may appear the better what it is, and whether it be extant.

'First, therefore, in this, as in all things which are practical, we ought to cast up our account, what is in our power, and what is not; for the one may be dealt with by the way of alteration, but the other by way of application only. The husbandman cannot command, neither the nature of the earth nor the seasons of the weather; no more can the physician the constitution of the patient, nor the variety of accidents; so in the culture and cure of the mind of man, two things are without our command, points of nature and points of fortune, for to the basis of the one, and the conditions of the other, our work is limited and tied. In these things, therefore, it is left unto us to proceed by application.

"Vicenda est omnia fortuna ferendo:"
(All fortune is to be overcome by patience:)

'And so likewise,

"Vincenda est omnis natura ferendo:"
(All nature is to be overcome by patience.)

'But when we speak of suffering, we do not speak of a dull and neglected suffering, but of a wise and industrious suffering, which draweth and contriveth use and advantage out of that which seemeth adverse and contrary; which is that properly which we call accommodating or applying. Now the wisdom of application resteth principally in the exact and distinct knowledge of the precedent state or disposition, unto which we do apply: for we cannot fit a garment, except we first take measure of the body.

'So then the first article of this knowledge is, *to set down sound and true distributions and descriptions of the several characters and tempers of men's natures and dispositions; especially having regard to those differences which are most radical in being the fountains and causes of the rest, or most frequent in concurrence or commixture;* wherein it is not the handling of a few of them in passage, the better to describe the mediocrities of virtues, that can satisfy this intention. For if it deserve to be considered, "that there are minds proportioned to great matters and others to small," (which Aristotle handleth or ought to have handled, by the name of magnanimity;) doth it not deserve as well to be considered, "that there are minds proportioned to intend many matters and others to few?" So that some can divide themselves; others can perchance do exactly well, but it must be but in few things at once: and so there cometh to be a narrowness of mind, as well as pusillanimity. And again, "that some minds are proportioned to that which may be dispatched at once, or within a short return of time; others to that which begins afar off, and is to be won with length of pursuit:"

"Jam tum tenditque fovetque:"

(Even then begun to destine and cherish.)

'So that there may be fitly said to be a longanimity, which is commonly ascribed to God as a magnanimity. So further deserved it to be considered by Aristotle; "that there is a disposition in conversation, (supposing it in things which do in no sort touch or concern a man's self,) to soothe and please; and a disposition contrary to contradict and cross:" and deserveth it not much better to be considered, that there is a disposition not in conversation or talk, but in matter of more serious nature, (and supposing still in things merely indifferent,) to take pleasure in the good of another; and a disposition contrariwise, to take distaste at the good of another? which is that, properly, which we call good-nature or ill-nature, benignity or malignity; and therefore *I cannot sufficiently marvel that this part of knowledge, touching the several characters of natures and dispositions, should be omitted both in morality and policy, considering it is of so great ministry and suppeditation to them both.* A man shall find in the traditions of astrology, some pretty and apt divisions of men's natures, according to the predominances of the planets, lovers of quiet, lovers of action, lovers of victory, lovers of honor, lovers of pleasure, lovers of arts, lovers of change, and so forth. A man shall find in the wisest sort of these relations which the Italians make touching conclaves,

the natures of the several cardinals handsomely and lively painted forth : a man shall meet with, in every day's conference, the denominations of sensitive, dry, formal, real, humorous, certain, " huomo di prima impressione, huomo di ultima impressione," (a man of the first impression, a man of the last impression,) and the like : and yet nevertheless this kind of observation wandereth in words, but is not fixed in inquiry, for the distinctions are found many of them, but we conclude no precepts upon them : wherein our fault is the greater, because *both history, poesy, and daily experience are as goodly fields where these observations grow : whereof we make a few posies to hold in our hands, but no man bringeth them to the confectionary, that receipts might be made of them for the use of life.*

' Of much like kind are those impressions of nature, which are imposed upon the mind by the sex, by the age, by the region, by health and sickness, by beauty and deformity and the like, which are inherent, and not external ; and again, those which are caused by external fortune ; as sovereignty, nobility, obscure birth, riches, want, magistracy, privateness, prosperity adversity, constant fortune, variable fortune, rising " per saltum," (suddenly,) " per gradus," (gradually,) and the like. And therefore we see that Plautus maketh it a wonder to see an old man beneficent " benignitas hujus ut adolescentuli est," (he has this beneficence as being a young man.) St. Paul concludeth, that severity of discipline was to be used to the Cretans, " Increpa eos dure," (rebuke them sharply,) upon the disposition of their country, " Cretenses semper mendaces, malæ bestiæ, ventres segnis," (the Cretans are always liars, evil beasts, slow bellies.) Sallust noteth, that it is usual with kings to desire contradictories : " Sed plerumque regiæ voluntates, ut vehementes sunt, sic mobiles, saepeque ipsæ sibi adversae," (but for the most part the minds of princes, as they are impetuous, so are they changeable, and often self-contradictory.) Tacitus, how rarely raising of the fortune mendeth the disposition. " Solus Vespasianus mutatus in melius," (Vespasian alone was changed for the better by elevation of power.) Pindarus maketh an observation that great and sudden fortune for the most part debaseth men. " Qui magnam felicitatem concoquere non, possunt," (who cannot digest great good fortune.) So the Psalm sheweth it is more easy to keep a measure in the enjoying of fortune, than in the increase of fortune : " Divitiæ si affluant, nolite cor apponere," (if riches increase, set not your heart upon them.) These observations and the like I deny

not but are touched a little by Aristotle, as in passage, in his Rhetorics, and are handled in some scattered discourses: *but they were never incorporated into moral philosophy, to which they do essentially appertain; as the knowledge of the diversity of ground and moulds doth to agriculture, and the knowledge of the diversity of complexions and constitutions doth to the physicians, except we mean to follow the indiscretion of empirics, which minister the same medicine to all patients.*'

It is unnecessary perhaps to say that these are the sentiments of Bacon. The language is sufficiently characteristic to indicate the author. But, in again inviting the attention of our readers to the work mentioned at the head of this article, we could scarcely, perhaps, afford them so great a pleasure as to prefix to a few farther observations on the subject of Mr Combe's book, the opinions of him, whose glory it is, 'unassisted by any mortal, to have steadfastly entered the true path which was absolutely untrod before, and to have held out a light to posterity by a torch set up in the obscurity of philosophy.'

In a former article grounded on the work of Mr Combe, we took occasion to recommend it as an instructive volume on the subject of education; and our object at present is chiefly to lay before those of our readers who may not yet have perused it, such extracts as may serve to give an idea of its contents. A correct view of the capacities of individual constitution, and the propensities of native disposition, was, (as may be perceived in the full quotation above,) regarded by Lord Bacon as indispensable to success in mental cultivation. Important, however, as this subject was in his estimation, it was one which, in his wide but discerning survey of human knowledge, was 'noted as deficient.'

Whether in the modern science of phrenology we are furnished with the means of supplying this deficiency we cannot pretend to decide. But of one thing we feel assured, that this department of investigation is at present yielding facts which, whatever place they may be made to assume in theories and systems, are fraught with important instruction to all who exert an influence on the formation of character. We hope, therefore, that no one will be deterred from an attentive perusal of the work now before us, by the peculiarities of nomenclature in which its author has perhaps too freely indulged. The conclusions to which a reflecting mind may be led by the suggestions of this writer, form an intellectual and moral eminence from which the reader may contemplate new and boundless

scenes of improvement, inviting equally the efforts of self cultivation, and an enlightened and faithful endeavour to aid the progress of others.

The following passage, which is full of the eloquence of thought, gives an interesting view of the advantages arising from the circumstance that knowledge is an acquisition and not an endowment.

'Supposing the human faculties to have received their present constitution, two arrangements may be fancied as instituted for the gratification of these powers. 1st. Infusing into them at birth *intuitive knowledge* of every object which they are fitted ever to comprehend; or, 2*dly*. Constituting them only as *capacities* for gaining knowledge by exercise and application, and surrounding them with objects bearing such relations towards them, that, when observed and attended to, they shall afford them high gratification; and, when unobserved and neglected, they shall occasion them uneasiness and pain; and the question occurs, Which mode would be most conducive to enjoyment? The general opinion will be in favor of the first; but the second appears to me to be preferable. If the first meal we had eaten had forever prevented the recurrence of hunger, it is obvious that all the pleasures of satisfying a healthy appetite would have been then at an end; so that this apparent bounty would have greatly abridged our enjoyment. In like manner, if, our faculties being constituted as at present, intuitive knowledge had been communicated to us, so that, when an hour old, we should have been thoroughly acquainted with every object, quality, and relation that we could ever comprehend, all provision for the sustained activity of many of our faculties would have been done away with. When wealth is acquired, the miser's pleasure in it is diminished. He grasps after *more* with increasing avidity. He is supposed irrational in doing so; but he obeys the instinct of his nature. What he possesses no longer satisfies Acquisitiveness; it is like food in the stomach, which gave pleasure in eating, and would give pain were it withdrawn, but which, when there, is attended with little positive sensation. The Miser's pleasure arises from the *active state* of Acquisitiveness, and only the pursuit and obtaining of *new treasures* can *maintain this state*. The same law is exemplified in the case of Love of Approbation. The gratification which it affords depends on its *active state*, and hence the necessity for *new incense*, and *higher mounting* in the scale of ambition, is constantly experienced by its victims. Napoleon, in exile, said, "Let us live upon the past:" but he found this impossible; his predominating desires originated in Ambition and Self-esteem; and the past did not stimulate these powers, or maintain them in constant activity. In like manner,

no musician, artist, poet, or philosopher, would reckon himself happy, however extensive his attainments, if informed, Now you must stop, and live upon the past; and the reason is still the same. New ideas, and new emotions, best excite and maintain in activity the faculties of the mind, and activity is essential to enjoyment. If these views be correct, the consequences of imbuing the mind with the intuitive knowledge, would not have been unquestionably beneficial. The limits of our acquirements would have been reached; our first step would have been our last; every object would have become old and familiar; Hope would have had no object of expectation; Cautiousness no object of fear; Wonder no gratification in novelty; monotony, insipidity, and mental satiety, would apparently have been the lot of man.

'According to the view now advanced, creation, in its present form, is more wisely and benevolently adapted to our constitution than if intuitive instruction had been showered on the mind at birth. By the actual arrangement, numerous noble faculties are bestowed; their objects are presented to them; these objects are naturally endowed with qualities fitted to benefit and delight us, when their uses and proper applications are discovered, and to injure and punish us for our ignorance, when their properties are misunderstood or misapplied; but we are left to find out all these qualities and relations by the exercise of the faculties themselves. In this manner, provision is made for ceaseless activity of the mental powers, and this constitutes the greatest delight. Wheat, for instance, is produced by the earth, and admirably adapted to the nutrition of the body; but it may be rendered more grateful to the organ of taste, more salubrious to the stomach, and more stimulating to the nervous and muscular systems, by being stripped of its external skin, ground into flour, and baked by fire into bread. Now, the Creator obviously prearranged all these relations, when he endowed wheat with its properties, and the human body with its qualities and functions. In withholding congenital and intuitive knowledge of these qualities and mutual relations, but in bestowing faculties of Individuality, Form, Coloring; Weight, Constructiveness, &c. fitted to find them out; in rendering the exercise of these faculties agreeable; and in leaving man in this condition, to proceed for himself,—he appears to me to have conferred on him the highest boon. The earth produces also hemlock and foxglove; and, by the organic law, those substances, if taken in certain moderate quantities, remove diseases; if in excess, they occasion death: but, again, man's observing faculties are fitted, when applied under the guidance of Cautiousness and Reflection, to make this discovery; and he is left to make it in this way, or suffer the consequences of neglect.

'Further, water, when elevated in temperature, becomes steam; and steam expands with prodigious power; this power, confined by muscular energy, exerted on metal, and directed by intellect, is capable of being converted into the steam-engine, the most efficient, yet humble servant of man. All this was clearly prearranged by the Creator; and man's faculties were adapted to it; but still we see him left to observe and discover the qualities and relations of water for himself. This duty, however, must be acknowledged as benevolently imposed, the moment we discover that the Creator has made the very exercise of the faculties pleasurable, and arranged external qualities and relations so beneficially, that, when known, they carry a double reward in adding by their positive influence to human gratification.

'The Knowing Faculties, as we have seen, observe the mere external qualities of bodies, and their simpler relations. The Reflecting Faculties observe relations also; but of a higher order. The former, for example, discover that the soil is clay or gravel; that it is tough or friable; that it is wet, and that excess of water impedes vegetation; that in one season the crop is large, and in the next deficient. The reflecting faculties take cognizance of the *causes* of these phenomena. They discover the *means* by which wet soil may be rendered dry; clay may be pulverized; light soil may be invigorated; and all of them made more productive; also the relationship of particular soils to particular kinds of grain. The inhabitants of a country who exert their knowing faculties in observing the qualities of their soil, their reflecting faculties in discovering its capabilities and relations to water, lime, manures, and the various species of grain, and who put forth their muscular and nervous energies in accordance with the dictates of these powers, receive a rich reward in a climate improved in salubrity, in an abundant supply of food, besides much positive enjoyment attending the exercise of the powers themselves. Those communities, on the other hand, who neglect to use their mental faculties and muscular and nervous energies, are punished by ague, fever, rheumatism, and a variety of painful affections, arising from damp air; are stinted in food; and, in wet seasons, are brought to the very brink of starvation by total failure of their crops. This punishment is a benevolent admonition from the Creator, that they are neglecting a great duty, and omitting to enjoy a great pleasure; and it will cease as soon as they have fairly redeemed the blessings lost by their negligence, and obeyed the laws of their being.

'The winds and waves appear, at first sight, to present insurmountable obstacles to man leaving the island or continent on which he happens to be born, and to his holding intercourse with his fellows in distant climes: But, by observing the relations of water to timber, he is able to construct a ship; by observing the

influence of the wind on a physical body placed in a fluid medium, he discovers the use of sails; and, finally, by the application of his faculties, he has found out the expansive quality of steam, and traced its relations until he has produced a machine that enables him almost to set the roaring tempest at defiance, and to sail straight to the stormy north, although its loudest and its fiercest blasts oppose. In these instances, we perceive external nature admirably adapted to support the mental faculties in habitual activity, and to reward us for the exercise of them.

'It is objected to this argument, that it involves an inconsistency. Ignorance, it is said, of the natural laws, is necessary to happiness, in order that the faculties may obtain exercise in discovering them;—nevertheless, happiness is impossible till these laws shall have been discovered and obeyed. Here, then, it is said, ignorance is represented as at once *essential* to, and *incompatible* with enjoyment. The same objection, however, applies to the case of the bee. Gathering honey is necessary to its enjoyment; yet it cannot subsist and be happy till it has gathered honey, and therefore that act is both essential to, and incompatible with its gratification. The fallacy lies in losing sight of the natural constitution both of the bee and of man. While the bee possesses instinctive tendencies to roam about the fields and flowery meadows, and to exert its energies in labor, it is obviously beneficial to it to be furnished with motives and opportunities for doing so; and so it is with man to obtain scope for his bodily and mental powers. Now, gathering knowledge is to the mind of man what gathering honey is to the bee. Apparently with the view of effectually prompting the bee to seek this pleasure, honey is made essential to its subsistence. In like manner, and probably with a similar design, knowledge is made indispensable to human enjoyment. Communicating intuitive knowledge of the natural laws to man, *while his present constitution continues*, would be the exact parallel of gorging the bee with honey in midsummer, when its energies are at their height. When the bee has completed its store, winter benumbs its powers, which resume their vigor only when its stock is exhausted, and spring returns to afford them scope. No torpor resembling that of winter seals up the faculties of the human race; but their ceaseless activity is amply provided for. *First*, The laws of nature, compared with the mind of any individual, are of boundless extent, so that every one may learn something new to the end of the longest life. *Secondly*, By the actual constitution of man, he must make use of his acquirements habitually, otherwise he will lose them. *Thirdly*, Every individual of the race is born in utter ignorance, and starts from zero in the scale of knowledge, so that he has the laws to learn for himself.

'These circumstances remove the apparent inconsistency. If

man had possessed intuitive knowledge of all nature, he could have had no scope for exercising his faculties in *acquiring* knowledge, in *preserving* it, or in *communicating* it. The infant would have been as wise as the most revered sage, and forgetfulness would have been necessarily excluded.

'Those who object to these views, imagine that after the human race has acquired knowledge of all the natural laws, if such a result be possible, they *will be in the same condition as if they had been created with intuitive knowledge;* but this does not follow. Although the *race* should acquire the knowledge supposed, it is not an inevitable consequence that *each individual* will necessarily enjoy it all; which, however, would follow from intuition. The entire soil of Britain belongs to the landed proprietors as a class; but each does not possess it *all;* and hence every one has scope for adding to his territories; with this advantage, however, in favor of knowledge, that the acquisitions of one do not impoverish another. Further, although the race should have learned all the natural laws, their children would not intuitively inherit their ideas, and hence the activity of every one, as he appears on the stage, would be provided for; whereas, by intuition, every child would be as wise as his grandfather, and parental protection, filial piety, and all the delights that spring from difference in knowledge between youth and age, would be excluded. *3d, Using* of acquirements, is, by the actual state of man, essential to the preservation as well as the enjoyment of them. By intuition all knowledge would be habitually present to the mind without effort or consideration. On the whole, therefore, it appears that man's nature being what it is, the arrangement by which he is endowed with powers to acquire knowledge, but left to find it out for himself, is both wise and benevolent.

'It has been asked, "But is there no pleasure in science but that of discovery? Is there none in using the knowledge we have attained? Is there no pleasure in playing at chess after we know the moves?" In answer, I observe, that if we know beforehand all the moves that our antagonist intends to make and all our own, which must be the case if we know *everything* by intuition, we shall have no pleasure. The pleasure really consists in discovering the intentions of our antagonist, and in calculating the effects of our own play; a certain degree of ignorance of both of which is indispensable to gratification. In like manner, it is agreeable first to discover the natural laws, and then to study the "moves" that we ought to make, in consequence of knowing them. So much, then, for the *sources* of human happiness.

'In the *second* place, To reap enjoyment in the *greatest quantity*, and to maintain it *most permanently*, the faculties

must be gratified *harmoniously:* In other words, if, among the various powers, the *supremacy* belongs to the moral sentiments, then the aim of our habitual conduct must be the attainment of objects suited to gratify them. For example, in pursuing wealth or fame as the leading object of existence, full gratification is not afforded to Benevolence, Veneration, and Conscientiousness, and, consequently, complete satisfaction cannot be enjoyed; whereas, by seeking knowledge, and dedicating life to the welfare of mankind, and obedience to God, in our several vocations, these faculties will be gratified, and wealth, fame, health, and other advantages, will flow in their train, so that the whole mind will rejoice, and its delights will remain permanent as long as the conduct continues to be in accordance with the supremacy of the moral powers and the laws of external creation.

'*Thirdly*, To place human happiness on a secure basis, the laws of external creation themselves must accord with the dictates of the moral sentiments, and intellect must be fitted to discover the nature and relations of both, and to direct the conduct in coincidence with them.

'Much has been written about the extent of human ignorance; but we should discriminate between absolute incapacity to know, and mere want of information arising from not having used this capacity to its full extent. In regard to the first, or our capacity to know, it appears probable that, in this world, we shall never know the essence, beginning, or end of things; because these are points which we have no faculties calculated to reach: But the same Creator who made the external world constituted our faculties, and if we have sufficient data for inferring that His intention is, that we shall enjoy existence here while preparing for the ulterior ends of our being; and if it be true that we can be happy here only by becoming acquainted with the qualities and modes of action of our own minds and bodies, with the qualities and modes of action of external objects, and with the relations established between them; in short, by becoming thoroughly conversant with those natural laws, which, when observed, are prearranged to contribute to our enjoyment, and which, when violated, visit us with suffering, we may safely conclude that our mental capacities are wisely adapted to the attaiment of these objects, whenever we shall do our own duty in bringing them to their highest condition of perfection, and in applying them in the best manner.

'If we advert for a moment to what we already know, we shall see that this conclusion is supported by high probabilities. Before the mariner's compass and astronomy were discovered, nothing would seem more utterly beyond the reach of the human faculties than traversing the enormous Atlantic or Pacific Oceans;

but the moment these discoveries were made, how simple did this feat appear, and how completely within the scope of human ability! But it became so, not by any addition to man's mental capacities, nor by any change in the physical world; but by the easy process of applying Individuality, and the other knowing faculties, to observe, Causality to reflect, and Constructiveness to build; in short, to perform their natural functions. Who that, forty years ago regarded the smallpox as a scourge, devastating Europe, Asia, Africa, and America, would not have despaired of the human faculties ever discovering an antidote against it? and yet we have lived to see this end accomplished by a simple exercise of Individuality and Reflection, in observing the effects of, and applying vaccine innoculation. Nothing appears more completely beyond the reach of the human intellect, than the cause of volcanoes and earthquakes, and yet some approach towards its discovery has recently been made.*

'Sir Isaac Newton observed, that all bodies which refracted the rays of light were combustible, except one, the diamond, which he found to possess this quality, but which he was not able, by any powers he possessed, to burn. He did not conclude, however, from this, that the diamond was an exception to the uniformity of nature. He inferred, that as the same Creator made the refracting bodies which he was able to consume and the diamond, and proceeded by uniform laws, the diamond would, in all probability, be found to be combustible, and that the reason of its resisting his power, was ignorance on his part of the proper way to produce its conflagration. A century afterwards, chemists made the diamond blaze with as much vivacity as Sir Isaac Newton had done a wax candle. Let us proceed, then, on an analogous principle. If the intention of our Creator was, that we should enjoy existence while in this world, then He knew what was necessary to enable us to do so; and He will not be found to have failed in conferring on us powers fitted to accomplish His design, provided we do our duty in developing and applying them. The great motive to exertion is the conviction, that increased knowledge will furnish us with increased means of doing good,—with new proofs of benevolence and wisdom in the Great Architect of the Universe.'—pp. 82, 95.

The following extracts are from that part of the work which treats of the 'evils that befall mankind from infringement of the organic laws.'

'An organized being, I have said, is one which derives its existence from a previously existing organised being, which subsists on food, grows, attains maturity, decays and dies. What-

* *Vide* Cordier, in Edin. New Phil. Journ. No. VIII. p. 273.

over the ultimate object of the Creator, in constituting organised beings, may be, it will scarcely be denied, that part of His design is, that they should enjoy their existence here; and, if so, every particular part of their systems will be found conducive in its intention to this end. The first law, then, that must be obeyed, to render an organised being perfect in its kind, is, that the germ from which it springs shall be complete in all its parts, and sound in its whole constitution; the second is, that the moment it is ushered into life, and as long as it continues to live, it shall be supplied with food, light, air, and every physical aliment necessary for its support; and the third law is, that it shall duly exercise its functions. When all these laws are obeyed, the being should enjoy pleasure from its organised frame, if its Creator is benevolent; and its constitution should be so adapted to its circumstances, as to admit of obedience to them, if its Creator is wise and powerful. Is there, then, no such phenomenon on earth, as a human being existing in full possession of organic vigor, from birth till advanced age, when the organised system is fairly worn out? Numberless examples of this kind have occurred, and they show to demonstration, that the corporeal frame of man is so constituted, as to admit the *possibility* of his enjoying organic health and vigour, during the whole period of a long life.'—pp. 112, 113.

'Now, as a natural law never admits of an exception; for example, as no man ever sees without eyes, or digests without a stomach, we are entitled to say, that the best condition in which an organised being has ever been found, is fairly within the capabilities of the race. A human being, vigorous and healthy from the cradle to the grave, could no more exist, unless the natural constitution of his organs permitted it, of design, than vision could exist without eyes. Health and vigour cannot result from infringement of the organic laws; for then pain and disease would be the objects of these laws, and beneficence, wisdom, and power, could never be ascribed to the Creator, who had established them. Let us hold, then, that the organised system of man, in itself—admits of the possibility of health, vigour, and organic enjoyment, during the full period of life; and proceed to inquire into the causes why these advantages are not universal.

'One organic law, is, that the germ of the infant being must be complete in all its parts, and perfectly sound in its condition, as an indispensable requisite to its vigorous developement, and full enjoyment of existence. If the corn that is sown is weak, wasted, and damaged, the plants that spring from it will be feeble, and liable to speedy decay. The same law holds in the animal kingdom; and I would ask, has it hitherto been observed by

man? It is notorious that it has not. Indeed, its existence has been either altogether unknown, or in a very high degree disregarded by human beings. The feeble, the sickly, the exhausted with age, and the incompletely developed, through extreme youth, marry, and without the least compunction regarding the organisation which they shall transmit to their offspring, send into the world miserable beings, the very rudiments of whose existence are tainted with disease.'—pp. 114, 115.

'A second organic law regards nutriment, which must be supplied of a suitable kind, and in due quantity. This law requires also free air, light, cleanliness, and attention to every physical arrangement by which the functions of the body may be favored or impaired. Have mankind, then, obeyed or neglected this institution? I need scarcely answer the question. To be able to obey institutions, we must first know them. Before we can know the organic constitution of our body, we must study that constitution, and the study of the human constitution is anatomy and physiology. Before we can be acquainted with its relations to external objects, we must learn the existence and qualities of these objects, (unfolded by chemistry, natural history, and natural philosophy), and compare them with the constitution of the body. When we have fulfilled these conditions, we shall be better able to discover the laws which the Creator has instituted in regard to our organic system. It will be said, however, that such studies are impracticable to the great bulk of mankind, and, besides do not appear much to benefit those who pursue them. They are impracticable only while mankind prefer founding their public and private institutions on the basis of the propensities, instead of that of the sentiments. I have mentioned, that exercise of the nervous and muscular systems is required of *all* the race by the Creator's fiat, that if all, who are capable, would obey this law, a moderate extent of exertion, agreeable and salubrious in itself, would suffice to supply our wants, and to surround us with every beneficial luxury; and that a large portion of unemployed time would remain. The Creator has bestowed on us Knowing Faculties, fitted to explore the facts of these sciences, Reflecting Faculties to trace their relations, and Moral Sentiments calculated to feel interest in such investigations, and to lead us to reverence and obey the laws which they unfold; and, finally, he has made this occupation, when entered upon with the view of tracing His power and wisdom in the subjects of our studies, and of obeying His institutions, the most delightful and invigorating of all vocations. In place, then, of such a course of education being impracticable, every arrangement of the Creator appears to be prepared in direct anticipation of its actual accomplishment.

'The second objection, that those who study these sciences are not more healthy and happy, as organised beings, than those who neglect them admits also of an easy answer. Parts of these sciences are taught to a few individuals, whose main design in studying them is to apply them as means of acquiring wealth and fame; but they have nowhere been taught as connected parts of a great system of natural arrangements, fraught with the highest influences on human enjoyment; and in no instance have the intellect and sentiments been systematically directed to the natural laws, as the grand fountains of happiness and misery to the race, and trained to observe and obey them as the Creator's institutions.

'A third organic law, is, that all our functions shall be duly exercised; and is this law observed by mankind? Many persons are able, from experience, to attest the severity of the punishment that follows from neglecting to exercise the nervous and muscular systems, in the lassitude, indigestion, irritability, debility, and general uneasiness that attend a sedentary and inactive life. But the penalties that attach to neglect of exercising the *brain* are much less known, and therefore, I shall notice them more at length. How often have we heard the question asked, What is the use of education? The answer might be illustrated by explaining to the inquirer the nature and objects of the various organs of the body, such as the limbs, lungs, eyes, and then asking him if he could perceive any advantage to a being so constituted, in obtaining access to earth, air, and light. He would, at once, declare, that they were obviously of the very highest utility to him, for they were the only conceivable objects, by means of which these organs could obtain scope for action, which action we suppose him to know to be pleasure. To those, then, who know the constitution of the intellectual and moral powers of man, I need only say, that the objects introduced to the mind by education, bear the same relation to them that the physical elements of nature bear to the nerves and muscles; they afford them scope for action, and yield them delight. The meaning which is commonly attached to the word *use* in such cases, is how much *money*, *influence*, or *consideration*, will education bring; these being the only objects of strong desire with which uncultivated minds are acquainted; and they do not perceive in what way education can greatly gratify such propensities. But the moment the mind is opened to the perception of its own constitution and to the natural laws, the great advantage of moral and intellectual cultivation, as a means of exercising the faculties, and of directing the conduct in obedience to these laws, becomes apparent.

'But there is an additional benefit arising from healthy activity of brain, which is little known. The brain is the fountain of

nervous energy to the whole body, and different modifications of that energy appear to take place, according to the mode in which the faculties and organs are affected. For example, when misfortune and disgrace impend over us, the organs of Cautiousness, Self-esteem, Love of Approbation, &c. are painfully excited; and then they transmit an impaired or a positively noxious nervous influence to the heart, stomach, intestines, and thence to the rest of the body; the pulse becomes feeble and irregular, digestion is deranged, and the whole corporeal frame wastes. When, on the other hand, the cerebral organs are agreeably affected, a benign and vivifying nervous influence pervades the frame, and all the functions of the body are performed with more pleasure and completeness. Now, it is a law, that the quantum of nervous energy increases with the number of cerebral organs roused to activity. In the retreat of the French from Moscow, for example, when no enemy was near, the soldiers became depressed in courage, and enfeebled in body, they nearly sunk to the earth through exhaustion and cold; but no sooner did the fire of the Russian guns sound in their ears, or the gleam of their bayonets flash in their eyes, than new life seemed to pervade them. They wielded powerfully the arms, which a few moments before, they could scarcely carry or trail on the ground. No sooner, however, was the enemy repulsed, than their feebleness returned. The theory of this is, that the approach of the combat called into activity a variety of additional faculties; these sent new energy through every nerve, and while their vivacity was maintained by the external stimulus, they rendered the soldiers strong beyond their merely physical condition. Many persons have probably experienced the operation of the same principle. When sitting feeble and listless by the fire, we have heard of an accident having occurred to some beloved friend, who required our instantaneous aid, or an unexpected visitor has arrived, in whom our affections were bound up, in an instant our lassitude was gone, and we moved with an alertness and animation that seemed surprising to ourselves. The cause was the same; these events roused Adhesiveness, Benevolence, Love of Approbation, Intellect, and a variety of faculties, which were previously dormant, and their influence invigorated the limbs. Dr Sparmann, in his Voyage to the Cape, mentions, that "there was now again a great scarcity of meat in the wagon; for which reason my Hottentots began to grumble, and reminded me that we ought not to waste so much of our time in looking after insects and plants, but give a better look out after the game. At the same time, they pointed to a neighbouring dale overrun with wood, at the upper edge of which, a the distance of about a mile and a quarter from the spot where we then were, they had seen several buffaloes. Accordingly, we went thither; but though our fatigue was lessened by

our Hottentots carrying our guns for us up a hill, yet we were quite out of breath, and overcome by the sun, before we got up to it. Yet, what even now appears to me a matter of wonder is, *that as soon as we got a glimpse of the game, all this languor left us in an instant.* In fact, we each of us strove to fire before the other, so that we seemed entirely to have lost sight of all prudence and caution."—"In the mean time, our temerity, which chiefly proceeded from hurry and ignorance, was considered by the Hottentots as a proof of spirit and intrepidity hardly to be equalled."

'It is part of the same law, that the more agreeable the mental stimulus, the more benign is the nervous influence transmitted to the body.

'If we imagine a man or woman, who has received from nature a large and tolerably active brain, but who has not enjoyed the advantages of a scientific or extensive education, so as to feel an interest in moral and intellectual pursuits for their own sake, and who, from possessing wealth sufficient to remove the necessity for labor, is engaged in no profession, we shall find a perfect victim to infringement of the natural laws. The individual ignorant of these laws, will, in all probability, neglect nervous and muscular exercise, and suffer the miseries arising from impeded circulation and impaired digestion; in entire want of every object on which the energy of his brain might be expended, its stimulating influence on the body will be withheld, and the effects of muscular inactivity tenfold aggravated; all the functions will, in consequence, become enfeebled; lassitude, uneasiness, anxiety, and a thousand evils, will arise; and life, in short, will become a mere endurance of punishment for infringement of institutions, calculated, in themselves, to promote happiness and afford delight, when known and obeyed. This fate frequently overtakes uneducated females, whose early days have been occupied with business, or the cares of a family, but which occupations have ceased before old age had diminished corporeal vigour; it overtakes men also, who, uneducated, retire from active business in the prime of life. In some instances, these evils accumulate to such a degree that the brain itself gives way, its functions become deranged, and insanity is the result.

'It is worthy of remark, that the more elevated the objects of our study, the higher in the scale are the mental organs which are exercised, and the higher the organs the more pure and intense is the pleasure; and hence, a vivacious and regularly supported excitement of the moral sentiments and intellect, is, by the organic law, highly favorable to health and corporeal vigour. In the fact of a living animal being able to retain life in an oven that will bake dead flesh, we see an illustration of the organic law rising above the purely physical; and, in the circumstance

of the moral and intellectual organs transmitting the most favourable nervous influence to the whole bodily system, we have an example of the moral and intellectual law rising higher than the mere organic.

'No person after having his intellect and sentiments imbued with a perception of, and belief in, the natural laws, as now explained, can possibly desire idleness, as a source of pleasure; nor can he possibly regard muscular exertion and mental activity, when not carried to excess, as anything else than enjoyments kindly vouchsafed to him by the benevolence of the Creator. The notion that moderate labor and mental exertion are evils, can orginate only from ignorance, or from viewing the effects of over-exhaustion as the result of the natural law, and not as the punishment for infringement of it.

'If, then, we sedulously inquire, in each particular instance, into the *cause* of the sickness, pain, premature death, and general derangement of the corporeal frame of man, which we see around us, and endeavour to discover whether it has originated in obedience to the physical and organic laws, or sprung from infringement of them, we shall be able to form some estimate how far bodily suffering is justly attributable to imperfections of nature, and how far to our own ignorance and neglect of divine institutions.

'The foregoing principles being of much practical importance, may, with propriety, be elucidated by a few cases of actual occurrence. Two or three centuries ago, various cities in Europe were depopulated by the plague, and, in particular, London was visited by an awful mortality from this cause, in the reign of Charles the Second. The people of that age attributed this scourge to the inscrutable decrees of Providence, and some to the magnitude of the nation's moral iniquities. According to the views now presented, it must have arisen from infringement of the *organic laws*, and been intended to enforce stricter obedience to them in future. According to this view, there was nothing inscrutable in its causes or objects, which, when clearly analysed, appear to have had no direct reference to the moral condition of the people: I say *direct* reference to the moral condition of the people, because it would be easy to show, that the physical, organic, and all the other natural laws, are connected indirectly, and constituted in harmony, with the moral law; and that infringement of the one often leads to disobedience to another, and brings a double punishment on the offender. But, in the mean time, I observe that the facts recorded in history exactly correspond with the theory now propounded. The streets of London were excessively narrow, the habits of the people dirty, and no adequate provision was made for removing the filth unavoidably produced by a dense population. The great fire in

that city, which happened soon after the pestilence, afforded an opportunity of remedying, in some degree, the narrowness of the streets; and habits of increasing cleanliness abated the filth; these changes brought the people into a closer obedience to the organic laws, and no plague has since returned. Again, till very lately, thousands of children died yearly of the smallpox, but, in our day, vaccine inoculation saves ninetynine out of a hundred, who, under the old system, would have died. The theory of its operation is not known, but we may rest assured, that it places the system more in accordance with the organic laws, than in the cases where death ensued. A gentleman, who died about ten years ago at an advanced period of life, told me, that, six miles west from Edinburgh, the country was so unhealthy in his youth, that every spring the farmers and their servants were seized with fever and ague, and required regularly to undergo bleeding, and a course of medicine, to prevent attacks, or restore them from their effects. At the time, these visitations were believed to be sent by Providence, and to be inherent in the constitution of things; after, however, said my informant, an improved system of agriculture and draining was established, and vast pools of stagnant water formerly left between the ridges of the field were removed, dunghills carried to a distance from the houses, and the houses themselves made more spacious and commodious, every symptom of ague and marsh-fever disappeared from the district, and it became highly salubrious. In other words, as soon as the gross infringement of the organic laws was abated by a more active exertion of the muscular and intellectual powers of man, the punishment ceased. In like manner, how many calamities occurred in coalpits, in consequence of infringement of a physical law, viz. by introducing lighted candles and lamps into places filled with hydrogen gas, that had emanated from seams of coal, and which exploded, scorched, and suffocated the men and animals within its reach, until Sir Humphrey Davy discovered that the Creator had established such a relation betwixt flame, wire-gauze, and hydrogen gas, that by surrounding the flame with gauze, its power of exploding hydrogen was counteracted. By the simple application of a covering of wire-gauze, put over and around the flame, it is prevented from igniting gas beyond it, and colliers are now able to carry, with safety, lighted lamps into places highly impregnated with inflammable air. I have been informed, that the accidents from explosion, which still occasionally occur in coal mines, arise from neglecting to keep the lamps in perfect condition.

'It is needless to multiply examples in support of the proposition, that the organized system of man, in itself, admits of a healthy existence from infancy to old age, provided its germ has been healthy, and its subsequent condition has been

uniformly in harmony with the physical and organic laws; but it has been objected, that although the human faculties may perhaps be adequate to discover these laws, and to record them in books, yet they are totally incapable of retaining them in the memory, and of formally applying them in every act of life. If, it is said, we could not move a step without calculating and adjusting the body to the law of gravitation, and could never eat a meal without a formal rehearsal of the organic laws, life would become oppressed by the pedantry of knowledge, and rendered miserable by petty observances and trivial details. The answer to this is, that all our faculties are adapted by the Creator to the external world, and act *instinctively* when their objects are placed in the proper light before them. For example, in walking on a foot-path in the country during day, we are not conscious, in adjusting our steps to the inequalities of the surface, of being overburdened by mental calculation. In fact, we perform this adjustment with so little trouble, that we are not aware of having made *any particular* mental or muscular effort. But, on returning at night, when we cannot see, we stumble, and discover, for the first time, how important a duty our faculties had been performing during day, without our having adverted to their labors. Now, the simple medium of light is sufficient to bring clearly before our eyes the inequalities of ground; but to make the mind equally familiar with the nature of the countless objects, and their relations, which abound in external nature, an intellectual light is necessary, which can be struck out only by exercising and applying the knowing and reflecting faculties; but the moment that light is obtained, and the qualities and relationships in question are perceived by its means, the faculties, so long as the light lasts, *will act instinctively* in adapting our conduct to the nature of the objects, just as in accommodating our movements to the unequal surface of the ground. It is no more necessary for us to go through a course of physical, botanical, and chemical reasoning, before we are able to abstain from eating hemlock, after its properties are known, than it is to go through a course of mathematical demonstration, before lifting the one foot higher than the other, in ascending a stair. At present, physical and political science, morals and religion, are not taught as parts of one connected system; nor are the relations between them and the constitution of man pointed out to the world. In consequence, theoretical knowledge and practice are often widely separated. Some of the advantages of the scientific education now recommended would be the following:

'In the first place, the physical and organic laws, when truly discovered, appear to the mind as institutions of the Creator, wise and salutary in themselves, unbending in their operation,

and universal in their application. They interest our intellectual faculties, and strongly impress our sentiments. The necessity of obeying them, comes upon us with all the authority of a mandate of God. While we confine ourselves to a mere recommendation to beware of damp, to observe temperance, or to take exercise, without explaining the *principle*, the injunction carries only the weight due to *the authority of the individual* who gives it, and is addressed to only two or three faculties, Veneration and Cautiousness, for instance, or Self-love in him who receives it. But if we are made acquainted with the elements of the physical world, and with those of our organized system,—with the uses of the different parts of the latter, and the conditions necessary to their healthy action,—with the causes of their derangement, and the pains consequent thereon: and if the obligation to attend to these conditions be enforced on our moral sentiments and intellect, then the motives to observe the physical and organic laws, as well as *the power of doing so*, will be prodigiously increased. Before we can dance well, we must not only *know the motions*, but our muscles must be trained *to execute them*. In like manner, to enable us to act on precepts, we must not only comprehend their meaning, but our intellects and sentiments must be disciplined into actual performance. Now, the very act of acquiring connected scientific information concerning the natural world, its qualities, and their relations, is to the intellect and sentiments what practical dancing is to the muscles; it *invigorates them*; and, as obedience to the natural laws must spring from them, exercise renders it more easy and delightful.

2. It is only by being taught the *principle* on which consequences depend, that we see the *invariableness* of the results of the physical and organic laws; acquire confidence in, and respect for the laws themselves; and fairly endeavour to accommodate our conduct to their operation. Dr Johnson defines "principle" to be "fundamental truth; original postulate; first position from which others are deduced;" and in these senses I use the word. The human faculties are instinctively active, and desire gratification; but Intellect itself must have fixed data, on which to reason, otherwise it is in itself a mere impulse. The man in whom Constructiveness and Weight are powerful, will naturally betake himself to constructing machinery; but if he be ignorant of the principles of mechanical science, he will not direct his efforts to as important ends, and attain them as successfully, as if his intellect were stored with these. Principles are deduced from the *laws* of nature. A man may make music by the instinctive impulses of Time and Tune; but there are immutable laws of harmony; and, if ignorant of these, he will not perform so invariably, correctly, and in good

taste, as if he knew them. In every art and science, there are principles referable solely to the constitution of nature, but these admit of countless applications. A musician may produce gay, grave, solemn, or ludicrous tunes, all good of their kind, by following the laws of harmony; but he will never produce one good piece by violating them. While the inhabitants west of Edinburgh allowed the stagnant pools to deface their fields, some seasons would be more healthy than others; and, while the cause of the disease was unsuspected, this would confirm them in the notion that health and sickness were dispensed by an overruling Providence, on inscrutable principles, which they could not comprehend; but the moment the cause was known, it would be found that the most healthy seasons were those that were cold and dry, and the most sickly those that were warm and moist; and they would then perceive, that the superior salubrity of one year, and unwholesomeness of another, were clearly referable to *one principle*, and would be both more strongly prompted, and rendered morally and intellectually more capable of applying the remedy. If some intelligent friend had merely told them to drain their fields, and remove their dunghills, they would not probably have done it; but whenever their intellects were enlightened, and their sentiments roused, to appreciate the advantages of adopting, and disadvantages of neglecting, the improvement, it became easy.

'The truth of these views may be still further illustrated by examples. A young gentleman of Glasgow, whom I knew, went out, as a merchant, to North America. Businesss required him to sail from New York to St Domingo. The weather was hot, and he, being very sick, found the confinement below deck, in bed, as he said, intolerable; that is, this confinement was, for the moment, more painful than the course which he adopted, of laying himself down at full length on the deck, in the open air. He was warned by his fellow passengers, and the officers of the ship, that he would inevitably induce fever by this proceeding: but he was utterly ignorant of the physical and organic laws; his intellect had been trained to regard only wealth and present pleasure as objects of real importance; it could perceive no necessary connexion between exposure to the mild and grateful sea breeze of a warm climate and fever, and he obstinately refused to quit his position. The consequence was, that he was rapidly taken ill, and lived just one day after arriving at St Domingo. Knowledge of chemistry and physiology would have enabled him, in an instant, to understand that the sea air, in warm climates, holds a prodigious quantity of water in solution, and that damp and heat, operating together on the human organs, tend to derange their healthy action, and ultimately to destroy them entirely: and if his sentiments had been

deeply imbued with a feeling of the indispensable duty of yielding obedience to the institutions of the Creator, he would have actually enjoyed, not only a *greater desire*, but a *greater power* of supporting the temporary inconvenience of the heated cabin, and might, by possibility, have escaped death.'—pp. 117–134.

From the closing observations of the author we quote the following, in which the subject is considered in connexion with the general interests of society, and with particular reference to education.

'The professions, pursuits, amusements, and hours of exertion of individuals, ought also to bear reference to their physical and mental constitution; but hitherto no guiding principle has been possessed to regulate practice in these important particulars,—another evidence that the science of man has been unknown.

'But we require only to attend to the scenes daily presenting themselves in society, to obtain irresistible demonstration of the consequences resulting from the want of a true theory of human nature, and its relations. Every preceptor in schools, every professor in colleges, every author, editor, and pamphleteer, every member of Parliament, counsellor and judge, has a set of notions of his own, which in his mind hold the place of a system of the philosophy of man; and although he may not have methodised his ideas, or even acknowledged them to himself as a theory, yet they constitute a standard to him by which he practically judges of all questions in morals, politics, and religion; he advocates whatever views coincide with them, and condemns all that differ from them, with as unhesitating dogmatism as the most pertinacious theorist on earth. Each also despises the notions of his fellows, in so far as they differ from his own. In short, the human faculties too generally operate simply as instincts, exhibiting all the confliction and uncertainty of mere feeling, unenlightened by perception of their own nature and objects. Hence public measures in general, whether relating to education, religion, trade, manufactures, the poor, criminal law, or to any other of the dearest interests of society, instead of being treated as branches of one general system of economy, and adjusted each on scientific principles in harmony with all the rest, are supported or opposed on narrow and empirical grounds, and often call forth displays of ignorance, prejudice, selfishness, intolerance, and bigotry, that greatly obstruct the progress of improvement. Indeed, unanimity, even among sensible and virtuous men, will be impossible, so long as no standard of mental philosophy is admitted to guide individual feelings and perceptions. But the state of things now

described could not exist if education embraced a true system of human nature and its relations.

'If then, phrenology be true, it will, when matured, supply the deficiencies now pointed out.

'But here another question naturally presents itself, How are the views now expounded, supposing them to contain some portion of truth, to be rendered practical? In answer I remark, that the institutions and manners of society indicate the state of mind of the influential classes at the time when they prevail. The trial and burning of old women as witches, point out clearly the predominance of Destructiveness and Wonder over Intellect and Benevolence, in those who were guilty of such cruel absurdities. The practices of wager of battle, and ordeal by fire and water, indicate Combativeness, Destructiveness, and Veneration, to have been in great activity in those who permitted them, combined with much intellectual ignorance of the natural constitution of the world. In like manner, the enormous sums willingly expended in war, and the small sums grudgingly paid for public improvements; the intense energy displayed in the pursuit of wealth; and the general apathy evinced in the search after knowledge and virtue, unequivocally proclaim activity of Combativeness, Destructiveness, Acquisitiveness, Self-esteem, and Love of Approbation; with comparatively moderate vivacity of Benevolence and Intellect, in the present generation. Before, therefore, the practices of mankind can be altered, the state of their minds must be changed. No practical error can be greater than that of establishing institutions greatly in advance of the mental condition of the people. The rational method is first to instruct the intellect, then to interest the sentiments, and, last of all, to form arrangements in harmony with, and resting on, these as their basis.

'The views developed in the preceding chapters, if founded in nature, may be expected to lead, ultimately, to considerable changes in many of the customs and pursuits of society; but to accomplish this effect, the principles themselves must first be ascertained to be true; then they must be sedulously taught; and when the public mind has been thoroughly prepared, then only ought important practical alterations to be proposed. It appears to me that a long series of years will be necessary to bring even civilized nations into a condition systematically to obey the natural laws.

'The preceding chapters may be regarded, in one sense, as an introduction to an Essay on Education. If the views unfolded in them be in general sound, it will follow that education has scarcely yet commenced. If the Creator has bestowed on the body, on the mind, and on external nature, determinate

constitutions, and arranged these so as to act on each other, and to produce happiness or misery to man, according to certain definite principles, and if this action goes on invariably, inflexibly, and irresistibly, whether men attend to it or not, it is obvious that the very basis of useful knowledge must consist in an acquaintance with these natural arrangements; and that education will be valuable in the exact degree in which it communicates such information, and trains the faculties to act upon it. Reading, writing, and accounts, which make up the instruction enjoyed by the lower orders, are merely *means of acquiring knowledge*, but do not *constitute* it. Greek, Latin, and mathematics, which are added in the education of the middle classes, are still only *means* of obtaining information; so that, with the exception of the few who pursue physical science, society dedicates very little attention to the study of the natural laws. In following out the views now discussed, therefore, each individual, according as he becomes acquainted with the natural laws, ought to obey them, and to communicate his experience of their operations to others; avoiding at the same time all attempts at subverting, by violence, established institutions, or outraging public sentiment by intemperate discussions. The doctrine now unfolded, if true, authorises us to predicate that the most successful method of meliorating the condition of mankind, will be that which appeals most directly to their moral sentiments and intellect; and, I may add from experience and observation, that, in proportion as any individual becomes acquainted with the real constitution of the human mind, will his conviction of the efficacy of this method increase.

'The next step ought to be to teach those laws to the young.* Their minds, not being pre-occupied by prejudices, will recognize them as congenial to their constitution; the first generation that has embraced them from infancy will proceed to modify the institutions of society into accordance with their dictates; and in the course of ages they may at length be acknowledged as practically useful. All *true* theories have ultimately been adopted and influenced practice; and I see no reason to fear that the present will prove an exception. The failure of all previous systems is the natural consequence of their being unfounded; if this one shall resemble them, it will deserve, and assuredly will meet with, a similar fate. A perception of the importance of the natural laws will lead to their observance, and this will be attended with an improved developement of brain, thereby increasing the desire and capacity for obedience.

*Some observations on Education will be found in the Phrenological Journal, vol. iv. p. 407.

'Finally. If it be true that the Natural Laws must be obeyed as a preliminary condition to happiness in this world, and if virtue and happiness be inseparably allied, the religious instructers of mankind may probably discover in the general and prevalent ignorance of these laws, one reason of the limited success which has hitherto attended their own efforts at improving the condition of mankind; and they may perhaps perceive it to be not inconsistent with their sacred office, to instruct men in the natural institutions of the Creator, in addition to his revealed will, and to recommend obedience to both. They exercise so vast an influence over the best members of society, that their countenance may hasten, or their opposition retard, by a century, the practical adoption of the natural laws, as guides of human conduct.'—pp. 282, 288.

ART. IV.—*The Journal of Health. Conducted by an Association of Physicians.* Philadelphia, J. Dobson. Boston, Carter & Hendee.

WE have just looked over the first three numbers of this journal, and hail them as harbingers of fair promise for a periodical on the plan proposed in the prospectus. Something of the kind here contemplated, we think has been long needed. Former attempts have been made in our country to get up a popular journal for a similar purpose; but they have all failed, either *directly*, for want of sufficient talent in conducting them, or *indirectly*, in consequence of their having changed their ground, and gradually verged to a character, only to be noticed by medical men.

A work, of the kind under consideration, should be, we think, wholly under the direction of practising physicians. Their daily occupation places them in a situation to know and feel the effects of the *ignorance* and the *prejudices* which prevail in the community, in relation to medicine and its professors, and to judge best what is wanting, to remove *both* from the minds of common readers. The intelligent and reading part of our population are daily seeking more and more for knowledge in almost every science; and we believe that much may be taught in a familiar and popular manner, concerning the structure of the animal frame, the laws of the animal economy; of the

properties and effects of the various articles of diet and medicine ; and the influence of climate, temperature, and the habits of men, on the physical properties and natural functions of their bodies.

That our views are in accordance with those of the editors of the Journal of Health will appear by the following quotations from the prospectus, on the first page of No. 1.

'Deeply impressed with the belief, that mankind might be saved a large amount of suffering and disease, by a suitable knowledge of the natural laws to which the human frame is subjected, they (the editors, or conductors,) propose laying down plain precepts, in easy style and familiar language, for the regulation of all the physical agents necessary to health, and to point out under what circumstances of excess or misapplication they become injurious or fatal.

'The properties of the air, in its several states of heat, coldness, dryness, moisture, and electricity ; the relative effects of different articles of solid and liquid aliment ; clothing, for protection against atmospherical vicissitudes, and a cause of disease, when under the direction of absurd fashions, shall be prominent topics for inquiry and investigation in this journal.

'The value of dietetic rules shall be continually enforced, and the blessings of temperance dwelt on, with emphasis proportionate to their high importance and deplorable neglect. Physical education, so momentous a question for the lives of children, and the happiness of their parents, shall be discussed in a spirit of impartiality, and with the aid of all the data which have been furnished by enlightened experience.

'Divested of professional language and details, and varied in its contents, the Journal of Health will, it is hoped, engage the attention and favour of the female reader, whose amusement and instruction shall constantly be kept in view during the prosecution of this work.'

We hope the editors of the Journal of Health will keep this last promise in full remembrance, and that they will not suffer their project to fail, from the *indirect* cause which we have mentioned. That it will do so from the *other*, we have too high an opinion of an association of our Philadelphia brethren to suppose.

We cannot but consider it the duty of physicians to contribute to a work of this nature, and we hope the conductors of it will receive all the aid and encouragement to which they are entitled.

The subjects which are discussed in the numbers before us, are numerous, and well selected ; and are presented with a de-

gree of brevity, candor, and plainness of speech, which are highly important, and desirable in such a work. We wish to present one or two more extracts, and shall select such as we think may be very usefully repeated in the pages of the Journal of Education.

'*Physical Education of Girls.*' Under this head it is stated that, 'in the physical education of children, it is not sufficient to consult their present ease and well-being; but attention is equally due to whatever is calculated to promote the vigour and usefulness of their future lives, by strengthening the constitution, preserving the limbs in the free exercise of all their motions, and guarantying the system from the deleterious influence of those agents by which it is to be constantly surrounded.

'Throughout the whole animal kingdom, the young are prompted by an instinctive impulse to almost constant exercise: conformably to this intimation of nature, the infancy of man should be passed in those harmless gambols which exercise the limbs, without requiring any minute direction from the head, or the constant guidance of a nurse.

'From exercise, and the free use of pure air, no child should be debarred: upon these depend, in a great measure, the health, vigour, and cheerfulness of youth; while they contribute essentially to the permanence of the same blessing during adult life.

'The bodily exercise of the two sexes ought, in fact, to be the same. Girls should not therefore be confined to sedentary life within the precincts of a nursery, or at best, permitted a short walk, veiled and defended from every gleam of sunshine, and every breath of air.'

'*Complaints of the Studious.* By long continued sedentary habits, an almost total neglect of exercise in the open air, and too prolonged and intense application of the mind, the studious are but too apt to bring upon themselves a long train of stomachic and nervous affections, by which their progress in the pursuit of knowledge is often seriously impeded, or entirely interrupted. Those who read and write much, should pay great attention to their position. They ought to sit and stand by turns, always preserving the body in as erect a posture as possible. It has an excellent effect frequently to read and speak aloud; this not only exercises beneficially the lungs, but nearly the whole body. Midnight studies ought undoubtedly to be avoided, as in the highest degree pernicious to health. The morning has been allowed, by all medical writers, to be the time best adapted to study.'

We close our remarks, with our best wishes for the success of the Journal of Health, and the assurance that we shall gladly add our name to the list of its subscribers.

ART. V.—*Extract from an Address delivered before the Worcester County Lyceum, at Worcester, Oct* 28th, 1829. By EMORY WASHBURN, Esq.

PERHAPS, the most important subject upon which these associations may be brought to bear with the greatest success, is that of education. Such is the veneration with which we look upon the act of our forefathers in establishing common schools, and so perfect, in fact, is that system of education, devised by them, in its various parts, that we should suggest with no ordinary degree of diffidence, any changes in the system under the name of improvements, if both analogy and experience did not justify it.

It is certainly remarked, that without any experience to guide them, or any model from which to copy, the founders of our common schools should have originated and matured a plan which is susceptible of so few changes and improvements. Their adaptation, to the then wants of the people, the simplicity of the system in its parts, and its efficacy as a whole are deserving of unqualified praise. It is not, however, any imputation upon them or their system to say that it is at this day susceptible of improvement, or to call upon all who feel how intimately it is connected with the enjoyment of all that is valuable under our government, to unite their exertions to perfect, so far as is possible, a temple whose plan and foundation are so admirable and complete.

The advance of the age, and the new discoveries which have been made in the moral as well as the physical world, call for a corresponding advance and improvement in our systems of education. I forbear going into detail at this time upon what these precise improvements should be, for I have seen the failure of too many of the Utopian schemes of innovators, who, in their zeal to do much good, have done a positive evil; who, to open a royal road, a pure and smoother highway to knowledge, have closed the ordinary avenues, and at last found themselves and their followers lost in the mazes of an untried region, without a path to follow or a guide to lead them. Every age has had its reformers like these, but no age has been more prolific of them than our own. We have at one time been told how the heights of Parnassus might be scaled at a single leap, and at another have seen our new fangled schools, through which the paths to science and literature lay among flowers

and sunny glades, as inviting as the poet's description of the approach to the Castle of Indolence, and where, as in that abode of delight,

——— 'sooth to say,
No living wight could work, ne cared even for play.'

But though these experiments have terminated as all experiments must, which have for their object the acquisition of knowledge, without patient and assiduous labor, the science of teaching has by no means been stationary. The objects and means of education have become better understood. It has assumed a more practical and useful character, especially in its higher branches, and the progress which it has made, together with the importance which exists under a government like ours, of every one being properly and practically educated, must gratify while they should stimulate the friends of improvement to fresh and united exertions.

If there were no other circumstance from which to derive encouragement except that discovery of modern days, an infant school, all that we could urge and all that we could anticipate, would derive support from reason and analogy. It remained for modern times to discover how to employ those days of infant existence which have too often been employed in nothing better than developing the corporal functions and powers by, as it were, a mere vegetable growth and expansion in exercising, strengthening, aad developing the intellectual being, and giving life and energy to the immortal mind. Results alike gratifying and surprising have sprung from these humble seminaries, where education lays its tender and plastic hand upon the intellect and character of the future men and women of our country, before they have been suffered to gain strength by neglect, and to assume those perverse forms from long indulgence, which education, too often in vain, labors to correct. Whatever is accomplished in infant schools, might, perhaps, ordinarily be affected by maternal care and solicitude, applied in the family circle at home, if circumstances of property and leisure permitted the application of such attention. The multiplicity of every mother's cares is, however, so great, especially of those who like most of the females in New England, to their praise be it spoken, are employed in the active duties of their families, that few have leisure to devote to early education of their children, that time and unceasing attention which it requires.

It is by supplying this defect, that Infant Schools promise so

much to the cause of knowledge. Education begins earlier in life than many are willing to believe, and experience shows how rapidly the mental powers of the infant may be developed, and how early the twig may receive its direction to become the future tall, and sturdy, and beautiful tree, or distorted till it becomes irrevocably deformed, misshapen, and, at last, the useless cumberer of the ground.

We may in this connexion see how the success of Lyceums, as well as every other means calculated to diffuse knowledge to each sex and to all classes, may indirectly produce lasting and important benefits to society. Not only should husbands and fathers be intelligent and well informed, but it is even more important, if possible, that wives and mothers should be enlightened and well educated. It is upon them, that the character of each succeeding age in a great measure depends.

It is from impressions which the child receives while in his mother's lap, and the direction which is given to his thoughts, his disposition, and his feelings, while a prattler by her side, more than from any one thing else, that the future character of the man derives its qualities and its hues. Here and there a child is seen springing up with surprising precocity of intellect called *genius*, and that genius, and an inequality of intellectual capacities exist I will not deny ; but in many, I had almost said in most cases, the precocity of the child may be traced to the early care of a mother of superior intellect. Sir William Jones, for instance, might have been, for aught we know, the son of a gay, weak votaress of fashionable life and heartless pleasure. But we cannot conceive how the mother of Sir William Jones could ever have been the mother of a tame, incurious, and grovelling son.

But I need not multiply examples from history. I am willing to appeal to the observation and recollection of every one who hears me, upon this part of my subject. The attempt to cultivate and diffuse a taste for useful knowledge by any system which may be adopted, should begin earlier in life than when habits have been formed, tastes confirmed, and the cares and employments of life have begun to weigh upon the minds and spirits of those upon whom such system is to operate. Mutual instruction should begin by the fireside, in the little family circle that clusters around the mother as she plies her task during the winter's evening, when all is dreary without, and all is cheerful within, and when inquiry should be awakened, and all reasonable curiosity gratified. And if there is a scene upon

which superior intelligences may look down with complacency and pleasure, it is when a father or mother with a purity of purpose and a disinterestedness of affection, which belong only to a parent's heart, are fitting their children to fill an honorable sphere in the world, and to tread the crooked maze of life with usefulness and safety.

Parental instruction should be carried into every situation in life, instead of a child's being left, as is too often the case, to glean a mere pittance of knowledge from schools during the few weeks or days which parents ordinarily afford to their children. It should be carried into the fields, where nature opens her boundless storehouse. It should be communicated in the volumes of history, in the treatises on science, in the books of moral and religious instruction, which should be found in every social library, if not in every family, and which would be found there if a proper spirit and zeal could be diffused through the community.

The establishment and increase of these libraries are by no means the least important of those subjects which associations like these are calculated to encourage and promote. Schools may be at the foundation, but the access to books forms an essential part of the means by which knowledge is to be diffused. We urge this with the more confidence, because the multiplication and cheapness of books at this day, puts it in the power of every neighbourhood to be supplied with one or more libraries. We urge it too because it is a subject in which every one is interested, even if he regards only his personal gratification. To a man who never reads, how many wearisome hours pass over him, even while engaged in the active duties of life, with health, business, and friends to animate and employ him. But when the bustle and excitement of business is over, where old age or sickness have damped the ardor of his hopes, and removed him beyond the influence of the scenes and employments which once occupied his time, or when his early companions have fallen around him, and left him alone in the world, what condition can be less desirable, what state of mind less enviable than his whose taste has never been improved by culture, nor the circle of his knowledge enlarged by reading, who has never learned to hold converse with the mighty dead, nor to draw from the storehouse of nature around him, any of those exhaustless treasures of amusement, which lie open to all who seek for them.

Men toil for wealth as if they were sure candidates for a long life, and yet, in the acquisition of knowledge, of every thing which would make life worth possessing, they act as if to-day was the only moment in the duration of their existence, and they too often find in the loneliness and hypocondria of age, that they have toiled for a bubble that is not worth the effort.

Let no man say he has no time to read. If he would count up the scraps of hours, the portions of days and weeks, which, in the course of a life, might be thus employed without infringing upon his other employments, we believe he would find no man, not even him who toils the daily round of labor for his immediate support; who could urge the want of time as an excuse for neglecting altogether his own education or that of his family. Every one has observed how when men have once acquired a taste for reading, they discover means of gratifying it, and it is not too much to say that the objects of such associations as this would be well nigh accomplished, if this taste could be once diffused through the community. For this end, libraries should be established, and curiosity awakened by means of lectures, discussions, and direct appeals to the ignorant and unreflecting. They should be told of the pleasures and advantages of knowledge to every class. They should learn that it comes home to the business and affairs of life of every one, that it brightens and cheers what would otherwise be the loneliest hour, and gives to the lowliest and humblest, a companionship with the wisest and greatest of every age.

Nor is it alone for personal gratification and individual pleasure, that a taste for learning and the arts should be cultivated and extended. Considerations of a public nature, connected with the glory and honor of national character might be urged upon every citizen under a republican government. Why do we remember Greece, while the nations which flourished around her are forgotten? Why does the traveller as he pauses on the Aeropolis amidst the ruins of a wasted city, feel that he treads on holy ground, and start amidst crumbling temples and broken columns, at the creations of his own fancy? Why does the light of history gild more brightly the era of Augustus, though the strength and vigor of the Roman character had been tamed and weakened, than upon the days of her stern simplicity of character when victory perched on her standard, and kings were proud of the title of Roman citizen? It was the never dying lustre which learning and the arts threw over the ages when

they flourished, which consecrated them to glory and immortality. They have even consecrated the Saracen character of one era, and once shed a light over the cities of the East which seemed perhaps more splendid and brilliant from the darkness, the thick, impenetrable darkness which brooded over christian Europe, during the five hundred years in which the sacred flame of learning was cherished and kept alive by the bounty of the Mahometan Caliphs.

In other governments royal bounty, and imperial patronage may give an impulse and life to literature and the arts which may immortalize the potentate and the age. But under a government like ours, the people alone possess the power, and every citizen has, therefore, something at stake to give to the age in which he lives and the nation of which he forms a constituent part, a character which other nations shall respect and after ages venerate.

But it is chiefly in regard to its moral tendency and effect that a diffusion of knowledge becomes important. Fear may restrain from the commission of the grosser crimes, and the punishment which awaits the guilty may keep men from indulging in the grosser vices. But it is to the intelligence of men that motives must be offered, and arguments addressed which have for their object to make men habitually honest, sober, and moral. It is one thing to warn the blindfold traveller that danger awaits him, and a far different one to open to his view the dizzy precipice on which he is standing, and to point out the end and consequences of the course he is pursuing.

It may, indeed, seem hopeless to attempt to eradicate sin and vice from the earth, but much has already been done in correcting the vicious habits and propensities of men in the progress and improvements of society. Crimes and vices which were once committed at noon day, are now unheard of or committed only in the darkness of midnight, or in the secret haunts of infamy and guilt. The diseases which pervade the moral, like those of the natural world, have assumed a milder form and character, and are less wasting and destructive in their consequences than in the earlier history of man. We know not to what this may be ascribed, except a more general diffusion of knowledge, and it seems by no means a visionary anticipation arising from this reflection, that as the world becomes wiser, it will lose more and more of that moral corruption and depravity which seems inseparable from a state ignorance, till public sentiment shall no longer tolerate open vice, although individuals

may still be found who shall secretly indulge in it. This anticipation might be pronounced extravagant, perhaps, if we might not indulge the hope that with the spread of useful and practical knowledge, a spirit favorable to the diffusion of knowledge of a higher character would be proportionately roused to energy and action.

There is a something, it is true, which passes under the garb and name of knowledge, which has been preached in our theatres, and published from the press of late in our country, by a shameless advocate of infidelity, who, regardless of all that the Christian religion has done for her sex in ameliorating their condition, and raising them from slavery and abject degradation to the high rank which they justly hold in the scale of being, would seize, like the strong man of old, the pillars of the temple and bury in one indiscriminate ruin the hopes of the future and the happiness of the present. Let me not, therefore, when I speak of knowledge be supposed to use the term as having any affinity with that cant phrase of modern reformers who would put out the sun at noon day to light the path of erring man by the dim taper of their own creation. I mean such knowledge as has been changing the aspect of human society since the reformation and the invention of printing; which combines natural reason with moral culture, and human science and discoveries with the truths of revelation.

It is by a diffusion of such knowledge as this that public sentiment becomes a powerful moral engine. We have seen its influence in our own day, stemming and almost stopping the tide of corruption, misery, and death which intemperance was pouring over our land; we have seen the course of this stream checked and narrowed in its ravages, and many a fair region saved from its desolating power, not by the aid of government, not by the strong arm of civil power, but by the more powerful, the more resistless influence of public sentiment and popular opinion which has been reached and controlled by well directed appeals to the intelligence and reason of the public.

Here is an instance of the influence and moral control which may be obtained over the public mind by a proper diffusion of knowledge; and where, let me ask, would we seek for a stronger proof of its beneficial results?

Others may talk of the danger of combinations, and tell of the alarming tendency of associations, where the power of the many may be directed to a single object, when that object *may* be dangerous in its character. But where can we find any thing to

alarm us in associations which have for their object the diffusion of knowledge ? Their bane would carry more than an antidote with it. It was in the days of ignorance that a Papal Hierarchy rivetted her chains upon the minds and consciences of men, and without a return of the days of ignorance, we need not fear the efforts of clerical or political combinations to trample on the rights, the liberties, or the consciences of men. It is to a general diffusion of knowledge and intelligence that liberty and virtue owe their strongest hold on a community. And it is to aid the cause of these, to promote our own and others' welfare that we are called upon to contribute our efforts to spread useful knowledge around us. Little may perhaps be accomplished by individual exertions, if unaided and unsupported. But if united as the plan if these associations proposes, they become the little rills that form the mighty river which flows on resistless in its course, fertilizing, enriching and scattering plenty to wide and distant regions.

Humble, therefore, though our efforts may be, let them be united and unwavering, and other men and after days may feel, though they may never acknowledge the influence of our exertions in the cause of useful knowledge.

Art. VI.—*Remarks on the Science of Phrenology.*

Phrenology, is a system of philosophy of the mind, avowed by its advocates to be founded on ascertained facts. It declares that the brain of man is the material instrument by means of which the mind carries on its intercourse with the external world. That it is an aggregate of parts, each of which has a special and determinate function.

We are not among the *enthusiasts* of this newborn science, but are disposed to state some of the reasons which induce us to believe in some of its doctrines. First, then, all certain knowledge in physical science tends to show, not only that every material thing which exists, exists in organic forms, but that each particular part thereof is perfectly organized also, and that their external forms are derived from their internal organization. This internal organization is primarily determined by the use which nature intends to perform thereby. This we believe to

be universally true ; it may be, in some measure, illustrated by the different members of a body politic ; while every member adds strength, and increases the perfection of the whole, every member is at the same time a perfectly organized and independent form, having its own peculiar and distinct vocation, and which in general accords with his genius and power. So of the various and minutest parts of each man, each part has its own specific use to perform, and thereby helps to perfect the whole ; this is precisely true of the brain, in general, and in particular.

The researches of the mineralogist, the botanist, and the physiologist, are daily enriching the mind by discovering the exact adaptation of means to ends in the minutest parts of creation, which the microscope enables them to examine. Is it from these researches that the conclusion is drawn, that the brain of man is the only exception to this general law ? Is that part of our material nature which is the habitation and instrument of those affections and powers which constitute the peculiar perfections of man, and render him an image of his creator, the only example of Chaos which is presented to his contemplation ? We would rather ask, if it is not more rational and more philosophical to suppose the difficulty to be in its not being understood. In the physical forms of the different natures of men, we observe peculiarities as striking as in their mental and moral character ; the same is true in general of the citizens of every community, and of the members of every family. Every skull we meet has as certainly its peculiar form, as its tenant has a peculiar character, each perhaps distinguished by *some* mental qualities, and perhaps as remarkably deficient in others. In the absence, then, of all contrary proof, is it not highly rational to suppose, either that both are effects of the same cause, or that they are related as cause and effect, to discover by observation and induction, the nature of this relation between the external form of the brain, and the mental qualities and powers of men, is the business and object of the science of Phrenology. Some *facts* fixing the *location* of some of the faculties of the mind, are so abundantly attested by repeated observation, as to cease to be subjects of dispute with those who are acquainted with the evidence on which they rest. The subject is in our estimation an interesting one, and one which in its details opens an unmeasured field for daily observation, for curious and philosophical research, and for ourselves, we should be glad to see it one of more general in-

quiry. Every accession of established truth helps immediately or mediately in the discovery of more truth ; it tends to enlighten and to elevate the mind, and to illumine the path of duty, and while we believe that in the progress of knowledge, and the descent of truth, that every part of the brain which is now viewed as a particular, will be seen to be a general, unfolding within itself innumerable particulars. Yet can we never fully understand how beautifully and how wonderfully we are formed.

ART. VII.—*Popular Education in Kentucky.—An Introductory Lecture, delivered before the Lexington Mechanic's Institute, June* 20, 1829. *By Rev.* BENJAMIN O. PEERS. *Published at the request of the Board of Managers.* Transylvania Press. 1829. pp. 32.

'THE topic assigned as the subject of the present Lecture, by the Association at whose request I appear before you, is, the object, plan, and history of Mechanic's Institutes.

'These, as the name imports, are associations consisting principally of mechanics, united together for the purpose of literary improvement in general, but particularly for acquiring a knowledge of those philosophical principles which are receiving constant illustration in the practical operations of the arts.

'The time has been in the history of our forefathers, and that less remote too than might be imagned, when the mechanic was looked upon to be as really a machine as any constructed by his skill, when such societies as those we are about to describe would have been suppressed by law, and when in fact by royal statute, mechanics were forbidden to send their children to school.

'But a new era has dawned upon the world and the English language is not now made the instrument of opposition to the cause of *universal* education, excepting as it is occasionally used to give expression to the sullen but expiring mutterings of that spirit of ecclesiastical and political misrule which dreads knowledge upon the principle of "hating and avoiding the light because its deeds are evil."

'So complete has been the revolution on this subject that it is scarcely to be credited, that under date of 1825, the follow-

ing language should have been addressed to the greatest living champion of popular improvement. "We can," (says a minion of royalty) "regard this scheme only as the baseless fabric of a vision, *happily* quite beyond any man's power to accomplish on a large and permanent scale but calculated so far as it can be accomplished, to *alarm* all sober and prudent persons among the middle and *upper* orders of society and to render the laboring classes *uneasy, unhappy, and dissatisfied.*"

'A kindred spirit under a still more recent date makes the following observations in opposition to this "*baneful* project." "Suppose (says he) that some friend to humanity were to attempt to improve the condition of *the beasts* of the field; to teach the horse his power, and the cow her value; would *he* be that tractable and useful animal he is, and would *she* be so profuse of her treasures to a helpless child?—Could any thing be more impolitic? Yet there is not, that I know of, any express law against it, nor would it be one jot more ridiculous than teaching tailors and cobblers 'the beautiful system of Geometry.'"

'It were superfluous to tell you that such sentiments have never disgraced the American press. The broad bosom of the Atlantic spreads itself out between us and the land in which the tongue or pen of man dares utter them, and I make these extracts at the present time only to show what cause we have to love still more the country of our birth, and to heighten our gratitude to that Almighty Being whose kind Providence has made it our lot to live under a system of government whose policy it is to encourage to the utmost, rather than depress the diffusion of intelligence.

'In this land of freedom the mind as well as the body is unfettered; the fountain of knowledge is open to all, and whosoever will may drink at it.

'Of the ample provision made by some of the members of our Republic for the education of the young, we have long been accustomed to boast, and not without reason; but it is only of late years that the idea seems to have been started, that a system of instruction adapted only to the incipient period of life, and embracing at most only one fourth of our inhabitants, is obviously partial and incomplete as a system of national education.

'The utmost that can be accomplished at a primary school (the only school through which a majority of society pass,) in the way of mental culture, is to excite a thirst for knowledge, to impart a small amount of elementary information, and to es-

tablish habits of research which will enable the individual to raise for himself in after life, a superstructure on the foundation laid for him by others in his youth. To supply this defect in our system of national education, Mechanic's Institutes and Lyceums have been established, which besides attending to the instruction of the young, provide for the mutual and self-improvement of adults, of both sexes and of all ages and classes indiscriminately. The arrangements made for effecting these objects in such associations generally, are very similar to those which have been adopted by the institution recently established in our town, a detailed account of which, (as we know it will be expected,) will be given on the present occasion. The Mechanic's Institute of Lexington has been in existence but a few weeks. At the meeting on which the Constitution was adopted, a Board of Managers was appointed consisting of nine persons, two thirds of whom must be mechanics, to whose discretion is entrusted the management of the principal affairs of the Society. The Society meets only once in three months to receive the report of the Managers and to transact such business as does not come within their province.

'The Board itself meets weekly, and if the punctuality, the spirit, and harmony which prevail at its sittings can be looked upon as ominous of the success of our institution; truly its prospects are of the most flattering character.

'One of the first steps of the Board of Managers was to provide a Library, the delivery of Public Lectures, and an Apprentices' School, all of which have been in whole or partially effected. The nucleus of a Library has been formed, a course of Lectures for three months, in which two members of the College Faculty and three members of the Medical Faculty of Transylvania University have promised to participate, may be considered as commencing with to-day, to be continued every Thursday evening in this place; and a very promising School for young mechanics, whether apprentices, journeymen, or masters, has been in operation for a week, and will be continued every Tuesday and Friday evening under the instruction of four or five gentlemen who have volunteered their services for this purpose. To be admitted a member of the Mechanic's Institute, application must be made to the Board of Managers. The terms of membership are the payment of one dollar on subscribing the Constitution, and of two dollars as an annual contribution to be collected quarterly. The fee for tuition in the School is one dollar per quarter.

'The members of the Institute have the use of the Library and the privilege of attending the Lectures with their families and apprentices, without additional expense; to all others a separate charge will be made for each. In addition to these provisions the Board of Managers design as soon as practicable to lay the foundation of the cabinets of Models and Minerals contemplated by the Constitution.'

'In bringing these remarks upon this part of the subject to a conclusion I would ask, whether our conduct evinces that the people of Kentucky are sufficiently impressed with the importance of popular education. The question is one of immediate and vital interest to us all; it is appropriate to the occasion and the audience, and I will give it an honest answer by saying, it does not. Why else is it, that one half or four hundred of the children of the town in which we live, the most eminent in the western country for its literary privileges, are not to be found at school? I speak from actual investigation. The corporation of Louisville, have within a few weeks past voted $1500 a year for the payment of Teachers in a Public Free School, besides $400 for the purchase of Apparatus, and $150 to defray the expenses of the Superintendent whilst visiting the Monitorial Schools of New York. What does this example speak to us? Our Board of Trustees are exemplary for their liberal attentions to the streets and other public objects in our town, and would not the people bear it that part of the money thus expended to accommodate the soles of their feet, or even an additional sum should be bestowed for improving the minds of their children, and educating the swarms of little outcasts that infest our streets.'

'There is now and has been for twenty years, a standing law appropriating 6000 acres of land to the establishment of one academy in every county. But what has been done for the introduction and maintenance of a system of common schools? in other words for the education of the great mass of the people?

'In 1822 a promising excitement prevailed upon this subject. One half the profits of the Commonwealth's Bank, estimated at $60,000 per annum, was set apart as a public school fund. A committee was appointed to prepare and report to the next Legislature a plan for common schools. This committee sent out their circulars to all parts of the Union. Our liberality was applauded abroad, our hopes and expectations were high, at home; but what has been the result? The re-

port was written and presented, it is true, but was never heard of afterwards. And what has become of the fund which by this time, had it been managed with ordinary wisdom or even fidelity, would have exceeded half a million of dollars? It has dwindled down to $150,000. Where is the remainder? It has gone to make up the deficiencies of the revenue. By what right has it been thus diverted? I leave this for our Legislators to answer. One thing I will assert however, that it is a question which they ought to be called upon to answer, and that speedily, otherwise it may be too late. The deficiency in the revenue for the current year will be upwards of $80,000, and if this is to be made up from the school fund, in two years this fund will be annihilated.'

'As to the education of teachers, it is believed that it is not necessary to wait until a splendid fund can be spared for the establishment of a seminary for this purpose. It has been ascertained that there are many, perhaps a sufficient number of young men in the country, who would embark in the business of instruction, as a profession, if they were assisted by the State or societies to obtain the necessary education. The School Bill introduced into the Senate last winter estimates our present school fund at $150,000. Now admitting that our eastern brethren with the very best opportunity of judging, do not attach too much importance to this matter, could a part of the interest of this sum be expended with a greater benefit to the State, than by assisting, say one young man at least from each county, to qualify himself at some of our colleges for the business of teaching? To give or loan even $50 a year to every such young man would educate one hundred for five thousand dollars.

'Would not the State be remunerated too for the expense of maintaining a *qualified* superintendant, who might render essential service to existing schools and teachers, by making himself acquainted with the best school books and the best methods of instruction, thus contributing to give uniformity to education; and who in addition to this might act as general agent to secure various grants of land to seminaries which have not as yet been appropriated?'

ART. VIII. *Letters of Pestalozzi on the Education of Infancy.*

(Continued from p. 432.)

LETTER VII.

IN my last letter I endeavoured to show the degree of importance which every mother attaches to that period, when, for the first time, the regards of her child meet her own, and the expression of love which fills her own countenance gives birth to a similar expression upon the features of her child.

This fact, which a mother never looks upon without experiencing a sentiment of happiness inconceivable to every other person, conducts her towards a series of considerations which she can never repent having justly appreciated, and through which I am going to try to follow her.

At the first view a great truth comes to strike her mind. It is, that gentleness and the manifestation of maternal love have produced the first apparent impression upon the look and the features of her child. Experience will not be slow in justifying the sentiment which makes her recognize in this impression the influence of her individual conduct upon the mind and heart of the being that owes to her its life.

Let her never lose sight of this fact. Providence, in ordaining that the order of nature should be thus, has given for her guidance a truth competent to conduct her towards the desired end, and to become for her an infallible principle of education. In the formation of the character as well as in the mode of transmitting knowledge, kindness will be the first and most powerful of means. Fear can do much without doubt, and there are still other means which may be employed with some appearance of success ; but in order to speak to the mind and to form the heart, nothing is more constantly efficacious than affection : it is the most easy road for arriving at the greatest results.

This fact of which I have been speaking, I have called a manifestation of *spiritual* nature in man ; and as such, it ought to engage the mother to consider under a new point of view her relations to her child.

This child is endowed like her with intellectual faculties ; faculties much superior to animal life, and in a great measure independent of its laws. The less they are developed at the period of which we are speaking, the more of attention and care they require.

Providence has given to the mother all the means of satisfying the physical wants of her child; we have seen also that the child, on his part, is endowed with an animal instinct, which singularly facilitates the task of the mother: but when the regards of the one meet the regards of the other, it is not merely to seek the satisfaction of a present want, or the solace of a present feeling of uneasiness; they do still more, they express the first want of intellectual nature and especially sympathy.

Animal instinct is a principle whose most important purpose is the preservation of the individual; it is towards this end that its first efforts are directed, and in the course of its successive developments it is always *I* that is the centre of its action.

It is not so with the mind and the affections of the soul; for nothing more incontestibly demonstrates the intellectual nature of man, than this kind of self denial which leads us to sacrifice our enjoyments and our happiness to the pleasure of others, and to make our own personal desires yield preference to more noble views.

A philosopher has said that whenever the mind inclines to future and invisible objects in preference to objects visible and present, the soul manifests its rights.

If we apply this observation to the preceding remarks, we shall be able to deduce therefrom principles and rules, in virtue of which the mother will, without devoting herself to laborious researches, be capable of ably promoting the great interests of her child, and of contributing to the improvement of the noblest part of his nature.

Animal instinct, I have said, always attentive to what may contribute to the well-being of the individual, disdains whatever relates to the satisfaction or the interests of others.

So long as the other faculties still sleep, the action of this instinct and the exclusive influence it exerts over the child, cannot be regarded as vicious. As yet there is no conscience in him; and although selfish in appearance, he is not permanently so. It even seems that the Creator has given him this power, which thus gives him the advantage over every thing, only while conscience and the other faculties cannot contribute to secure the first element of animal life, preservation.

But after the manifestation of these principles in a more elevated order, if this instinct is permitted to act as formerly without regulation and without restraint, it will then begin to put itself in opposition to conscience; and the culpable indul-

gence which is practised towards it, will only serve to develope selfishness at the expense of the best and most amiable qualities.

I desire that this may be well understood, and I shall perhaps succeed better by explaining the rules of conduct which flow from this principle, than by delaying longer upon abstractions.

And first, it is necessary that the mother, for the purpose of preserving any order, any regularity, in the cares which she bestows upon her child, should constantly persevere in the good principles which she has adopted: it is necessary that she should never depart from the path marked out for her; that she should never neglect to satisfy the wants of the child when they are real, and that she forbid herself the dangerous indulgence of wants which are imaginary or which are expressed only with importunity. The more promptly and constantly she shall adhere to these principles, the greater and more durable also will be the advantages which she will obtain for her child.

Let these means be employed with perseverance, and in a short time one will recognize how prompt and efficacious is their action. Their first advantage will be in favor of the mother. She will be exposed to interruptions less frequent, and will be less tempted to yield to excitements of bad humor; and though her patience may often be put to the proof, her mind will be able to secure itself against every species of irritation. She will necessarily find a real satisfaction in her relations to her child, and will recollect that she is a mother less by the sensibility to her duties than by the charm of her enjoyments.

However, it is the child that is to derive the greatest advantages from this plan of conduct.

Experience will soon teach mothers the benefits of such a system, and the fatal consequences of a contrary proceeding. In the first case, the wants of the child are few and easily satisfied, a certain proof of excellent health; in the second, the rules which were here proposed are neglected; and if, in order to shun every thing that looks like severity, a mother yields to an indulgence without bounds, she will soon perceive that with good intentions she has followed a false and dangerous road; and still more, her weakness will become a source of discontents and of pains for her, without being a subject of satisfaction for her child; and she will have sacrificed her repose, without doing any thing to secure the happiness of him who is so dear to her.

Let mothers, who have had the misfortune to fall into so cruel a mistake, tell us if they have not had frequent occasion to repent of their fatal indulgence; if, indeed, by a still greater misfortune, this indulgence has not given place to a culpable indifference, or a fatal abandonment of her duties. Let children themselves, who have been brought up in excessive indulgence, tell us if they have not experienced the cruel consequences; let them tell us if, in spite of all the means used to kindle their courage, they have ever enjoyed that health, that calmness, and equality of humor, which are the first elements of durable pleasure and happiness.

Yes, let them tell us if such a system is calculated to inspire them with a taste for the innocent pleasures and amiable sports of infancy; if, in youth, it gives them the strength necessary for resisting the passions, or for kindling in them a noble enthusiasm; and if, having become men, they can find in it that germ of courage and vigor which is to crown their efforts with success.

We are not all born to be philosophers, but we all aspire to enjoy the best possible state, both of soul and body; and in order to arrive at this happy result, it is necessary *to desire little, and to be content with still less.* PESTALOZZI.

LETTER VIII.

THE morals of the child ought especially to derive great advantages from a good system of education, and do not think that in speaking thus I lose sight of the state of the earliest infancy. I know that the being of which I speak is not yet provided with reason; and it is in vain to endeavour to give him an idea of the just and the unjust,—principles upon which rest, not only our duties as individuals, but also the edifice of our social system. If then some persons may regard my opinions on this subject as the reveries of a visionary, let them know that I am ready to abandon them as soon as I shall have been convinced of their erroneousness by experience.

Until then, let me be permitted to maintain that aid and encouragement cannot be too early given to what there is most noble in the nature of the child, to the end that he may be able to struggle successfully against the progressive action of the animal instinct.

This action, indeed, manifests itself more and more every day ; and far from confining itself to the first efforts which had for their object the preservation of the individual, it extends and developes itself farther and farther. Its very force and violence form a striking contrast with the feebleness of the physical faculties. See the child seize with avidity upon the objects which present themselves to him ; all that excites his curiosity calls forth his desires ; and the inconceivable obstinacy of this want is always in proportion to the obstacles which hinder the child from gratifying it.

Thus all that there is in him unpleasant and disagreeable, attaches itself in one way or another to the action of this animal instinct ; and if we consider the child with his desires and his impatience, we cannot but recognise that he exhibits the image of man fallen into a burst of passions.

I know that it is the custom to say that passion ought to yield to the principles of a sound morality, and that our desires should be regulated by reason ; but the first infancy is an age when we cannot have recourse to any of these means, and it is then also that Providence has compensated them by an agent still more powerful, I mean *maternal love.*

The only influence to which the heart is accessible for a long time before the mind can appreciate it, is that of affection. Now, who is better fitted than a mother to captivate the affection of the child, during the first period of his life.

Where I read in the works of a distinguished writer *that fear and a sort of religious terror are the best means of gaining authority over the minds of children, an authority which afterwards affection and friendship cannot fail to maintain,* it is impossible for me to conceive otherwise than that an unfortunate mistake alone has prompted this writer to utter an opinion entirely opposed to the enlightened sentiments to be found in many of his writings.

For, supposing even that this means was as powerful and as advantageous as it appears to me useless and fatal, I do not see how it would be possible to put it in practice in the age now in question.

Fear supposes the power of appreciating the consequences of an action or event, and implies also the consciousness of causality ; and causality in its turn presupposes the faculity of observing, of comparing, of combining a great number of facts, and of deducing thereform a kind of conclusion.

Truly, the able writer, whom I have quoted, cannot have at-

tibuted to the child a course of reasoning so complicated and so foreign to the state of his intellectual faculties. *Fear* is then a means which must be renounced, not only because it is a motive of action unworthy of human nature, but also because it cannot be applied in the first and most important periods of life.

By what we have called a sort of *religious terror* must be understood a vague and confused impression, which throws a veil as it were over the mind, and which, whilst it acts exclusively upon the imagination and the nervous system, remains wholly foreign to reasoning, and is incapable of giving any impulse whatever to our faculties. Or, indeed, we may consider this sentiment as originating in the conviction of the moral superiority of another,—a conviction which takes possession of the mind and leads the soul to consider only with a profound veneration objects which the understanding cannot embrace, or to follow blindly the precepts which have received the sanction of infinite wisdom.

This sort of terror, in the first signification which we have given to it, has indeed a certain affinity with the first sensations of the child; but it depends then upon a sentiment of weakness, or an accidental uneasiness; thenceforth it ought to be considered as a physical phenomenon, and consequently as little suitable to be employed in moral education. Besides, it cannot serve as a motive, since from its nature it is only a transitory sensation, and cannot constitute the basis of a solid plan of conduct, much less form and regulate the moral habits.

In the second sense of the words, 'religious terror' supposes many ideas to which the child is, and will yet be long a stranger. How can moral dignity be appreciated where the consciousness of moral force has not yet manifested itself.

PESTALOZZI.

LETTER IX.

THE reasons which I have set forth in my last letter authorize me to conclude that, in the education of infancy, maternal love is the most powerful of all agents, as affection is the first of all motives.

The mother cannot, therefore, exercise too much care, too many precautions, in the first exercise of her authority. Un-

der this point of view, each of her acts must be approved at once by her conscience and her experience. She ought not to forget what an imposing responsibility weighs upon her, and how important may be the consequences of her conduct to the future happiness of the child. She will not be slow then to perceive that the only means of judging correctly of the nature of her authority consists in considering it rather as a duty than as a prerogative, and in never thinking it absolute.

If the child remains quiet, if he shows neither impatience nor uneasiness, believe that it is through love for his mother. Now it is of the greatest importance to mark the difference between the action which is determined by the fear of authority, and the conduct of which affection is the only principle.

The first comes from reasoning, the second has its cause in the heart; and we may renounce the one where the motives which produced it have ceased to exist; but the other must be permanent, for it does not depend upon circumstances or accidental considerations, since it is founded upon a principle moral and durable.

Thus the conduct of the child which answers to the hopes of its mother, offers at first a proof of affection, and afterwards a proof of confidence.

A proof of affection; for the first, the most innocent of the desires which manifest themselves in the child, is that of pleasing its mother; and if it is doubted that such a desire can exist in the heart of a being yet so little developed, I shall answer as on almost all occasions by an appeal to the experience of mothers.

I have spoken of confidence; but if the child has been neglected; if all the necessary attention has not been paid to his wants; if, instead of finding the smile of kindness upon the countenance of those who approach him, he has always perceived only the expression of repulsive severity, it will not be easy to bring him back to that sweet and happy disposition which will allow him to wait for the satisfaction of his desires without impatience, or to enjoy it without avidity.

Thus, when affection and confidence have once taken place in the heart of a child, it is the mother's duty to do every thing in her power to encourage, to fortify, and to ennoble this principle. Without this, the sweet, but still feeble emotions will by degrees grow weaker; those cords to which sympathy will not give a salutary movement, will cease to vibrate and will no longer give a sound. Now confidence springs from confidence, and affection cannot be maintained but by affection; be not

therefore deceived; the mind of the child tends always to put itself in unison with the minds of those who surround it.

It is necessary also to seek to fortify this moral principle which nature has placed in the heart of the child, and for this I know of but one means, it is *practice*. The same effort constantly renewed becomes less difficult, and it is the nature of things that a power, whether physical or moral, will perform certain functions with so much the more assurance and success, as these functions have become more familiar by habit. The first care then of the mother should be to give the greatest heed that her own manners and treatment should be constantly calculated to bring forth the affection and to cultivate the confidence of the child. She should not give herself up for an instant to bad humor or ennui, for it is impossible to say how powerfully the child is affected by circumstances even the least important. Without doubt it is not capable of appreciating the motives or of foreseeing the consequences of an action; preserving of the past only a general and almost confused impression, it is far from having the consciousness of the future; but it is for this that the present acts upon him with more force, whether in making him feel the weight of a lively pain, or in offering to him the charm of the more agreeable emotions. If the mother will give close attention to this she will be able to spare the child these painful impressions, which, though they by no means perhaps present themselves to her recollection with the transitory circumstances which produced them, may nevertheless leave a cloud upon the mind and weaken a sentiment which it is the duty and interest of mothers to cherish without ceasing.

But it is not enough to have encouraged and fortified this sentiment, it is necessary to seek still to elevate its nature.

Indeed, let not the mother content herself with the successes which the rectitude of her intentions, and perhaps also the dispositions or character of her child, may have rendered more easy; but let her remember that, far from being a uniform, and as it were a mechanical process, education should become a source of gradual and progressive improvement. Let her be equally on her guard both against the security which success gives birth to, and against the discouragements which difficulties may produce. She should not forget what are the ultimate ends of education, but hold herself ready to take part in the great work, of which in her quality of mother she should also hasten the accomplishment; I mean the elevation of the moral nature of man. PESTALOZZI.

ART. IX.—*Principles of Borrowing and Banking.* By E. LORD. *New York.* 12mo. pp. 132.

To facilitate the convenient interchange of the necessaries and luxuries of life, something is needed to represent their value. Whatever answers this end may be called money or the circulating medium,—it is of no importance what this is, or whether it be such from its inherent quality, or from its representative character, provided it answers fully this end. Paper would be equally as good, and often better than gold or silver if equally safe; but this is not generally the case, from the greater facility it affords to fraudulent designs. Gold and silver moreover has the advantage of being a circulating medium which is acknowledged by all nations. Paper, on the other hand, affords in some respects much greater conveniences, and is cheaper to provide—indeed paper money in some shape could hardly be dispensed with. Bank notes would be like the notes of individuals, but for their security being better known; and bankers frequently do, though not often in country, issue their own promissory notes which circulate as money. So much as paper is prepared for circulation, cheaper than the metals are coined for this use, is a clear saving to the community provided the paper affords equal security to the holder. This it generally does not and perhaps cannot, but the greater conveniences it affords in some other respects is more than sufficient to overbalance this: for all the uses for which the metals are equally convenient, we think them clearly preferable to paper; but this must be a small part of the whole use of a circulating medium; the truth probably is that the actual wants of the community require both. We are inclined to the opinion, however, that it would be a salutary regulation to forbid the issue of any bills of a less denomination than five dollars, the effect would be to retain a much larger amount of gold and silver in the community and enable the circulating medium better to sustain its equilibrium amid the fluctuations to which it is incident in consequence of the metals being articles of merchandize.

In a paper currency, then, there is greater convenience and greater economy than in the use of gold and silver—all that is wanting is to make it equally secure—to effect this, is in our estimation, all the regulation which banking requires. To this end Mr Lord proposes:

'The modifications of the banking system to be proposed and recommended for adoption, may be briefly described as requiring *the capitals of banks to be invested in permanent securities, and their credit alone, founded on the known amount and condition of their capitals, to be employed in the operations of discount to an extent not exceeding in any instance the amount of capital invested.*

'In the administration of such banks, it is believed that the distinctive provisions *of investment of the capital and limitation of issues*, would operate as inherent and effectual restraints against undue emissions of paper.

'Banks with their capitals invested in this manner, were they subject to no limitation of issues, would be incapable of extending their emissions as much as may be done on the existing system ; for it is obvious that after going as far as possible on their credit, they might issue the whole amount of their capital also.' pp. [illegible]6.

In Scotland, where there are between two and three hundred banks, their capitals are secured by landed property, and in fifty years it is said that only six suspended payment, of which in two only were any deficiencies, and in both these not exceeding thirty thousand pounds.—To make it certain that all the bills issued are sure of being paid, is all the regulation that is necessary ; and this we consider one of the most important duties of government. Suffer this to be done, and it is of no consequence how many banks exist or what their capital or amount of their issues ; indeed under such circumstances the more money in circulation the better, it would only afford the greater evidence of a healthy and prosperous state of the trade of the community. The limited ability of every individual to command these issues,is the only limitation to which it ought to be subject. Banks indeed might then have their petty quarrels as they do now, the city might be arrayed against the country and the country against the city ; but the public would be more sceptical of the fallaceous and ridiculous idea that their object or tendency is to promote the public welfare; as a general rule all combinations for purposes of controul are adverse to the public good. The relative value of money admits of no arbitrary regulation nor needs any ; it is susceptible more or less to every influence which effects property or trade ; which is just as it should be. The only essential regulation is to make it unquestionably safe to the holder, which is effected not by limiting the amount of issues, but by providing suitable conditions of issuing at all.

This done, and the nature of the case will afford remedies exactly commensurate with all other difficulties.

'The object of all conventional regulations of the currency, should be to secure an adherence to the principles which naturally govern it. For though the operation of these principles can no more be superseded or hindered permanently, than that of any of the laws of nature can be, yet they may be temporarily violated and resisted; and by a constant effort to evade or oppose them, the most ruinous consequences may be produced: especially where a joint currency of metal and paper is in use, and where paper is issued, not by a controlling power like that which regulates the coin, but from a multitude of subordinate sources.' pp. 43, 44.

But our legislators and financiers instead of observing and guarding the natural law, fancy they can devise a better, and appear to think that to limit the number of banks on the present system, is to regulate the currency when it does not in fact touch the point of difficulty.

These remarks are made in a cursory and hasty manner, par. y with the view of recommending the work of Mr Lord to those interested in the subject, though it contains some doctrines in which we do not entirely agree with the author.

NOTICES.

At the present day so abundant and so varied as are the productions of the press, it can hardly be expected of the conductors of a public journal to notice all the books which may be placed upon their table, while a few of them are likely to be assigned to some of the 'editorial phalanx,' for formal direction, that their beauties and their deformities may be pointed out, others equally deserving that honor are likely to remain unnoticed; but as the present number of our work terminates the volume for this year, and we have a few pages yet to *fill up*, we shall in the present notice dispose, in a very brief manner, of some until now of this latter class.

Familiar Lectures on Botany, including Practical and Elementary Botany, with Generic and Specific Descriptions of the most common Native and Foreign Plants, and a Vocabulary of

Botanical Terms, for the Use of Higher Schools and Academies. By Mrs Almira H. Lincoln, Vice-Principal of Troy Female Seminary. Hartford. H. and F. J. Huntington. 1829. 12mo. pp. 340.

Former numbers of this Journal bear testimony how interesting and how appropriate we consider this delightful study for youth of both sexes, and for mature minds. Of the peculiarities of the volume before us we shall endeavour to give our readers some idea in the author's own words.

'It has been customary among botanical writers, to consider under separate heads, the physiology, anatomy, and classification of plants. This division, although proper in minute investigations upon physiology and anatomy, seems not well adapted for a school book. I have not therefore attempted to keep the departments separate.' 'The work is larger than I had at first designed; it may be urged, that remarks are introduced not strictly connected with the subject, and that the substance of the book might be much condensed. In answer to this objection, I would remark, that from experience in teaching others, and from observation of the operations of my own mind, I am led to believe that books most remarkable for a concise style, are not the most favorable for the developement of the mind. If a book is to be committed to memory, every word, member of a sentence, or idea, not absolutely essential, should be excluded; but this fact with regard to education seems now to be generally understood, that the memory may be burdened without improving the other intellectual faculties, and that the best method of teaching, is that which tends most to develope, fertilize, and strengthen the mind.

'A small text book, in a dry, concise style, may answer very well where a teacher has leisure and ability to amplify and explain; thus supplying to the pupils the want of an interesting book: yet with all this labor on the part of a teacher, a book containing interesting illustrations, would be desirable. But many teachers have neither the time, nor the confidence in themselves, to attempt to enlarge or illustrate: considering their duty as terminating in a faithful explanation of the book from which their pupils study.'

The drawings, as the author declares, were made expressly for the work. They appear to us to be selected with judgment and executed well. The illustrations are interesting and pertinent, and at the end is to be found an accented vocabulary of botanical terms. From the slight examination we have been able to give the volume we incline to think it a valuable addition

to the elementary works on the subject of Botany. We give the following extract as an illustration of the author's style and manner of treating her subject.

'CLASS VI—HEXANDRIA, AND CLASS VII—HEPTANDRIA.

'You have already been made acquainted with the lily, as it was one of the first flowers you were taught to analyze; and in a brief view of the liliaceous flowers, you have been presented with the most striking characters belonging to this family, which we might, following the example of great names, call an "illustrious" race. Pliny says, the "Lily is next in nobility to the rose." Linnæus called them the "*Nobles* of the vegetable kingdom;" he also called the palm trees "*Princes* of India:" but in our republican country, where aristocratic distinctions are little regarded, we will not attempt to introduce these titles of nobility among the flowers.

'In the class Hexandria, the symmetrical ratio between the number of stamens and the divisions of the other parts of the flower, is generally to be found. In the spider's-wort, (Tradescantia,) which has 6 stamens, we find the corolla 3 petalled, calyx 3 leaved, and capsules 3 celled. In the third class, which has 3 stamens, the divisions are often 6.

'In the lily, which has 6 stamens, there are 6 petals, 3 of these are exterior, 3 interior; the capsule is 3 sided, with 3 cells, and 3 valves; the seeds are arranged in 6 rows. This proportion of numbers seems to forbid the idea that this plant grew up merely by chance, without the agency of any designing mind. We are not to expect always to see the same symmetry in plants as has been here remarked. It is in the natural as in the moral world, that although every where around us we see such proofs of order and system as would manifest the superintending care of one Almighty Being; yet there are irregularities which we cannot comprehend; but although we may admire the *order*, we are not to say that even what seems *disorder*, is formed without a plan.'

At the end we notice the following directions for taking impressions from leaves.

'Hold oiled paper over the smoke of a lamp until it becomes darkened; to this paper apply the leaf, having previously warmed it between the hands, that it may be pliant. Place the lower surface of the leaf upon the blackened paper, that the numerous veins which run through its extent, and which are so prominent on this side, may receive from the paper a portion of the smoke. Press the leaf upon the paper, by placing upon it some thin paper and rubbing the fingers gently over it, so that every part of

the leaf may come in contact with the sooted oil paper. Then remove the leaf, and place the sooted side upon clean white paper, pressing it gently as before; upon removing the leaf, the paper will present a delicate and perfect outline, together with an accurate exhibition of the veins which extend in every direction through it, more correct and beautiful than the finest drawing.'

Elements of Physics, or Natural Philosophy, General and Medical, explained independently of Technical Mathematics, and containing New Disquisitions and Practical Suggestions. By Neil Arnott, M. D., of the Royal College of Physicians. First American from the Third English Edition, with Additions, by Isaac Hays, A. M., M. D., &c. Philadelphia. Carey, Lea, & Carey. 1829. 8vo. pp. 582.

A knowledge of the laws of nature, is, in our estimation, true intellectual wealth, the essentials of true learning; it is knowledge which forms an important part of that education, which is commenced in time, but which eternity will be found too short to finish. To understand natural philosophy is to understand the laws by which the Divine Being governs the ultimates of creation, and which will probably *ever* constitute in the mind the elements or ultimates of scientific knowledge. It leads to an understanding of those principles, or laws of creation and preservation, which are in themselves universal, and eternal, though their operation may be different under different circumstances and in different stages of existence.

Considering education in this *very liberal* sense, the study of geography, history, &c. is *comparatively* local and unimportant. With these views we earnestly recommend the study of natural philosophy. It affords, in its various departments, nourishment and appropriate exercise for almost every faculty with which the mind is endowed, and we consider it a favorable omen to see so many new works appearing on the subject. A chief object in the present notice is to introduce a few extracts from the work of Dr Arnott which we deem pertinent to our work and which nearly accord with our views.

'The greatest sum of knowledge acquired with the least trouble, is that which comes with the study of the few simple truths of physics. To the man who understands these, very many phenomena, which to the uninformed appear prodigies, are only beautiful illustrations of his fundamental knowledge,—and this he carries about with him, not as an oppressive weight, but as a charm supporting the weight of other knowledge, and enabling him to add to his valuable store every new fact of consequence which may offer itself. With such a principle of arrangement, his information instead of resembling loose stones or rubbish thrown together in confusion, becomes a noble edifice, of correct

proportions and firm contexture, which is acquiring greater strength and consistency, with the experience of every succeeding day. It has been a common prejudice, that persons thus instructed in general laws had their attention too much divided, and could know nothing perfectly. The very reverse, however, is true; for general knowledge renders all particular knowledge more clear and precise. The ignorant man may be said to have charged his hundred hooks of knowledge, to use a rough simile, with single objects, while the informed man makes each support a long chain, to which thousands of kindred and useful things are attached. The laws of philosophy may be compared to keys which give admission to the most delightful gardens that fancy can picture; or to a magic power, which unveils the face of the universe, and discloses endless charms of which ignorance never dreams. The informed man, in the world, may be said to be always surrounded by what is known and friendly to him, while the ignorant man is as one in a land of strangers and enemies. A man may read a thousand volumes of ordinary books as agreeable pastime, leaving vague impressions; but he who studies the *book of nature*, converts the great universe into a simple and sublime history, which tells of God, and may worthily occupy his attention to the end of his days.'

'Reverting to the importance of Natural Philosophy as a general study, it may be remarked, that there is no occupation which so much strengthens and quickens the judgment. This praise has usually been bestowed on mathematics; yet a knowledge of abstract mathematics existed with all the absurdities of the dark ages; but a familiarity with Natural Philosophy, which comprehends mathematics, and gives tangible and pleasing illustrations of the abstract truths, seems incompatible with any gross absurdity. A man whose mental faculties have been sharpened by acquaintance with these exact sciences, in their combination, and who has been engaged, therefore in contemplating *real relations*, is more likely to discover truth in other questions, and can better defend himself against sophistry of every kind.

Lessons in Greek Parsing, or Outlines of the Greek Grammar, divided into short portions, and illustrated by appropriate Exercises in Parsing. By Chauncey A. Goodrich. New Haven. Durrie & Peck. 18mo. pp. 129.

This little volume is intended for a book of first lessons in Greek. The author's plan is to teach the elements of the language by progressive exercises in parsing, attended by such statements and illustrations as to embody, in successive portions, the substance of an introductory treatise on Greek grammar. The prominent advantages of this method would seem to be these; the memory is addressed through the medium of the understand-

ing; the intellect is kept in constant activity; and the knowledge acquired is made the result of the student's own observation and experience.

'The Greek Grammar is divided into short portions, to each of which is attached a reading lesson, containing such words only as belong to that portion, or to others which have been previously gone over. In the first declension, for example, the *paradigm* of the first declension is followed by exercises which contain nouns of *that declension alone.*' 'In the second lesson, the learner is made acquainted with the forms of the second declension; which are then illustrated and impressed on the memory by examples from that declension.' 'In Part Second, the pupil enters on the Baryton verb, and is expected to learn a single tense only at a time, and then to impress that tense on his memory by exercises in parsing.' 'At proper intervals the process is inverted, and exercises are given in turning English into Greek. The work contains about the same quantity of Greek in the reading lessons as the Greek Delectus, together with a complete outline of the grammar, and exercises in the making of Greek.'

In the execution of his plan, the author of this work seems to have been peculiarly successful. Minuteness and fidelity in detail are evident throughout the work; and the exercises are carefully proportioned to the pupil's ability, while they make adequate demands on his diligence and application. We would earnestly recommend this volume to all who are engaged in the instruction of young pupils; and we would suggest it as a work excellently adapted for use in female schools, whether with a view to the acquisition of an elementary knowledge of the Greek language (as essential to a right understanding of the meanings of words, especially terms of science,) or for the purpose of attaining more enlarged and correct views of the subject of general grammar, or—what, in our view, is of still greater importance—for the sake of enabling this class of pupils to become acquainted, to at least some extent, with productions which embody perhaps the noblest and most beautiful forms of human thought.

Caii Julii Cæsar's Commentarii de Bello Gallico. Accedunt Notulæ Anglicæ atque Index Historicus et Geographicus. In usum Scholæ Bostoniensis. Curavit Fred. P. Leverett. Bostoniæ. Hilliard, Gray, Little, et Wilkins. 1829. 12mo. pp. 334.

This volume fills an important place among the valuable editions of preparatory classical authors, which, within a few years have issued from the Public Latin School of Boston. An accurate edition of Cæsar was much wanted; and it must be gratifying to instructers to receive one prepared with such ability and care.

Besides the superior accuracy of the text, the edition is recommended by the judicious omission of the supplementary books by

various writers, which are usually bound up along with those on the Gallic war, but which are seldom or never read, and which are certainly useless in a school copy of Cæsar. The 'Notes' are brief, but clear and instructive; and the 'geographical and historical index' is a valuable appendage to the work, containing much information not hitherto afforded in English editions of the author, and designating, in most instances, the quantities of the proper names. The neat and accurate style of the whole volume, and the engraved illustration of the bridge over the Rhine, form a striking contrast to the usual exterior of editions of this work.

Intellectual and Practical Grammar, in a series of Inductive Questions, connected with Exercises in Composition. By Roswell C. Smith, Author of Mental and Practical Arithmetic. Providence. 1829. 12mo. pp. 276.

Here is, at last, an attempt to present the subject of grammar in an intellectual form to the mind of the learner. We cannot speak particularly of the work, with the same confidence as to its accuracy in detail, as if we had had full opportunity to bring it to the test of experiment in the school room; but its plan is very nearly that which has been repeatedly suggested in our pages, as what was required to render the study of grammar a suitable discipline for the young mind. The author's method is to draw the pupil into conversation about words, and to put such questions to him as lead his mind to the same conclusions that are usually laid down in books on grammar, in the shape of definitions and rules. The work is, as it ought to be, of a simple and elementary character; and the illustrations are of that familiar kind which will render the book suitable for general use in schools.

One great advantage of the plan of this work is, that the pupil's mind is kept in continual activity by the variety in the form of the lessons, some of which consist in the correction of improprieties of speech, and others in regular but short and easy exercises to be written on paper or on the slate. The lessons in parsing are, with the exception of the concluding one on the Constitution of the United States, presented in gradual succession, and blended with the conversation and oral exercises on each class of words. To most teachers this work will probably be the more acceptable for the author's good sense in avoiding unnecessary peculiarities in his views of grammar; for, notwithstanding the originality of the plan, the results of the conversations and exercises will be found to correspond pretty nearly to the more formal and theoretic statements contained in Murray's Grammar; with this great advantage, that the pupil is enabled, by the arrangement of Mr Smith's work, not only to understand perfectly every step of his progress, but to obtain the results for himself, by the exertion of his own thoughts. To instructers generally, who

have not seen this work, we could not perhaps describe it more accurately, than by saying that it is nearly the same thing among books on grammar, that Colburn's works are among books on arithmetic. We hope the resemblance will hold in other respects also, and that this work on grammar will effect as great and as extensive a revolution in the mode of teaching in the branch of which it treats, as has been effected by the labors of Mr Colburn in his department.

A Book for Massachusetts Children, in familiar Letters from a Father. For the use of Families and Schools. Boston. Hilliard, Gray, Little, and Wilkins. 1829. 12mo. pp. 132.

This volume is intended to convey instruction in the form of practical and local information. It is a favorable specimen of the adaptation of useful knowledge to the minds of the young; it embraces a wide variety of particulars relating to geography, statistics, history, and zoology, as applicable to the State of Massachusetts; and it will be found an excellent introduction, we think, to the study of the geography and history of the United States.

The book consists of familliar letters, as mentioned in its title-page. The following are some of the subjects; The Commonwealth, its extent and boundaries; counties; seaports; commerce and navigation; fisheries; country towns; farming and other employments; capes; bays; islands; rivers; face of the country; mountains; soil; productions.

In some respects, however, the work needs revision. The map is too small; some portions of the political information seem unnecessary, and others improper for children. The moral instruction is too grave and formal, and sometimes associated with ideas of gloom and fear. Retrenchment and alteration, however, would certainly make this an invaluable book.

The questions appended to each letter form useful exercises; and if children were required to write the answers to most of them, in their own words, the whole subject would be more deeply impressed on the mind; and the application of grammar would be secured in conjunction with practice in penmanship and composition.

These exercises might be rendered still more interesting and useful, if thrown into the form of letters addressed to parents or friends, or, perhaps, even to the teacher.

L'Introducteur Français, or First Principles of the French Language; to which is prefixed a sketch of Pronunciation and Reading Exercises. The whole selected from the best French authorities. By C. A. Coulomb, Instructer of the French Language in the New-Haven Gymnasium, and Yale College. New-Haven. R. H. Maltby. 1829. 12mo. pp. 210.

What is required in books of this description is, in the first

place, perfect accuracy in statement, rather than comprehensive or philosophical views of language. In this respect, the book before us seems well adapted to facilitate the business of instruction. Nor has the author been less successful in giving to his work that simple and practical character indispensable in an elementary treatise; his whole plan and arrangement evince much skill in teaching, particularly with reference to the minds of the young.

The chief characteristics of this manual are the judicious selection of principles, and the appropriateness of the practical illustrations.

An Introduction to the French Language, with a Key to facilitate the literal and free Translation of the text, to point out the Grammatical Construction of the sentences, to show the Inversions of style, to supply Ellipses, and to explain idiomatical Expressions. By W. R. Johnson, Principal of the High School. Boston; Hilliard, Gray, Little, and Wilkins. Philadelphia; Towar and Hogan. 1829. 12mo. pp. 27 and 93.

The method of Du Marsais is here applied to the Greek language, and apparently with great success. The study of Greek, by the use of this volume, and of the elementary grammar of Professor Goodrich (mentioned in this number of the Journal,) will not only be rendered much easier and more practical than hitherto, but must prove a much better discipline of the mental powers of the learner; as the mode of application is rendered more natural and progressive, cultivates the intellect in conjunction with the memory, and incites the student to greater effort and closer investigation.

To enter into detail on the advantages of the method adopted by Mr Johnson, would be perhaps unnecessary, after the full expression of our opinions on this subject, which our readers will recollect as given in speaking of the excellent works of Mr Bolmar and of Mr Walker in the French and Latin languages, on the same plan. The method itself is briefly defined in the title page of the book as intended to facilitate *translation*, to point out *construction* and *inversion*, to supply *ellipsis*, and to explain *idiomatic* expressions. The aid in translation is so offered as not to authorise the pupil to dispense with his own diligence; and the instruction imparted on the other points mentioned, is full and satisfactory.

In the directions given for pronunciation, the author has adopted the standard of usage in modern Greek. To this some instructers may be disposed to object, as a source of irregularity and confusion; but an attentive investigation will, we believe, eventuate

in a conviction of the advantage of the existing standard of custom in Greece.

Sequel to Easy Lessons. A Selection of Reading Lessons for Common Schools, designed to be used after Easy Lessons in Reading, American Popular Lessons, Boston Reading Lessons, and other works of a similar rank. By the Author of the Literary and Scientific Class Book. Keene, N. H. 1829. 12mo. pp. 214.

In many schools a book of this description was wanted; and this volume seems on the whole well adapted to its objects. It is characterized generally by judicious selection, both as to matter and style, and possesses more than an ordinary share of novelty. Most of the pieces contain examples of conduct which would seem likely to exert a natural and favorable influence on the minds of children.

The Improved Guide to English Spelling, in which, by the aid of a simple yet particular Classification, the use of all figures and marks to indicate the pronunciation is rendered unnecessary, and the progress of the pupil greatly aided by Association. By William B. Fowle, Teacher of the Monitorial School, Boston. Boston. Hilliard, Gray, Little, and Wilkins. 1829. 18mo. pp. 160.

This little volume contains the substance of the Rational Guide in an abridged form, and with other modifications, by which it is better adapted to the purposes of elementary instruction. The chief recommendations of this spelling book are its accuracy in orthoepy, the aid which it affords in difficult words, and, especially, the simplicity of the plan by which the sounds of the vowels are indicated. But to this, as to all spelling books, we must object that so many words are inserted which are useless in any book for children, and which they have no occasion to read or spell, in lessons adapted to their capacity. We have opened the book at random for an example of this defect, and the eighty-fourth page presents itself, in which the following are the first five words; 'Intolerance, metropolis, monopolize, personify, preponderate.'

Sketch of a Plan for a System of National Education for Ireland; including Hints for the Improvement of Education in Scotland. By R. J. Bryce, A. M. Principal of the Belfast Academy. London. 1828.

Our present limits will not admit of an adequate statement of the views embodied in this interesting pamphlet. At a future opportunity we shall endeavour to make our readers more fully acquainted with its contents. The following paragraph from the

Preface will, in the meantime, serve to give an idea of the main objects of the writer.

'In all schemes of popular education that have been recently presented to the British public, either on paper or in practice, there is *one radical error*, namely, that they are calculated only for the poor,—and *one fatal defect*, namely, the omission of all provision for the regular professional education of teachers. In the following pages an attempt is made to prove two propositions, on which the justice of the foregoing observation depends. These positions are, That a good system of education for the lower classes, distinct from the rest of the people, *cannot exist*, and That all endeavours to improve education, however zealous and generous they may be, *must utterly fail*, as to every purpose of real value, unless means be provided for enabling teachers to study education as a liberal art, founded upon the philosophy of the human mind. It is therefore proposed to erect teaching into a fourth learned profession, by establishing a professer of the art in every university,—by requiring from those who study under him a good previous education, and, in particular, an acquaintance with the science of mind,—and making a certificate of attendance on his instructions an indispensable qualification for every public charge connected with the education of youth,—from the presidencies of our richest and most illustrious colleges, to the masterships of our humblest village schools.'

The French Accidence, or Elements of French Grammar. By William B. Fowle, Instructer of the Monitorial School, Boston. Boston. Hilliard, Gray, Little, and Wilkins. 1828. 24mo. pp. 88.

This little manual is designed for very young learners, and seems to be carefully adapted to their use. It supplies a suitable book for a class of pupils which it has been difficult hitherto to teach, from the want of such a volume; and the accuracy and uncommon neatness of its execution cannot fail of rendering it acceptable as well as useful among juvenile students.

Exercises in Writing French, adapted to the French Accidence or Elements of French Grammar. By William B. Fowle, Instructer of the Monitorial School, Boston. Boston. Hilliard, Gray, Little, and Wilkins. 1829. 24mo. pp. 128.

This volume consists of exercises adapted to the above Accidence, and differing from those in common use, chiefly in their simplicity and brevity, and strict adaptation to their respective rules and principles. In all these particulars the book seems peculiarly well fitted for the purposes of practical instruction, and especially for young pupils.

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